



British Guiana.

DIVISIONAL REPORTS

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR

1937.

GEORGETOWN, DEMERARA:

PRINTERS TO THE GOVERNMENT OF BRITISH GUIANA.

"THE ARGOSY" COMPANY, LIMITED.

1939.

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NOTE.

Readers are referred to Sugar Bulletin No. VII. and the Agricultural Journal, March, 1938, for complete summaries of the Sugar and Rice work.

The Report of the work of the Co-operative Credit Banks' Board is published separately.

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DEPARTMENT OF AGRICULTURE.

REPORT ON THE BERBICE DIVISION FOR THE YEAR 1937.

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REPORT ON THE BERBICE DIVISION FOR THE YEAR 1937.

STAFF.

J. D. Gillespie, B.Sc. (Edin.) —Agricultural Superintendent.
H. B. France —Agricultural Assistant.
R. R. Ross —Technical Assistant.

The district work during the year has been divided as follows:—Upper Courantyne Coast, *i.e.*, No. 50 to Crabwood Creek under the supervision of Mr. R. R. Ross.

West Coast Berbice —Mr. H. B. France.
East Bank and Lower Courantyne,
New Amsterdam, to No. 50 —Mr. J. D. Gillespie.

At the beginning of the year the district was in the charge of Mr. U. Macluskie who left the Colony on promotion at the end of January. The district was in charge of Mr. A. A. Abraham until the return from leave of Mr. Gillespie in the middle of the month of May.

GENERAL.

2. Except for the rather heavy rains which fell during the months of May and June and continued on into July and August, and which caused serious damage to the rice crop in several places, the weather during the year 1937 was not unusual. During the latter part of the year, however, exceptional heat was experienced with the day temperatures in the shade registering 94° on several occasions.

3. For the cane farmer this has been a trying year as the question of quotas and restrictions has been heard and there were grave doubts as to whether there was any possibility of carrying on the cultivations. The restrictions have, however, been confined to factory groups and the farmers are, in so far as it is possible to ascertain, very satisfied with the decisions on the matter arrived at by the authorities on these estates. For the rice farmer, apart from the question of heavy rains mentioned above, the season has been fairly successful. Those fields which were not damaged or in which the damage was reparable, gave a moderately good yield although not up to expectations.

CROP CONDITIONS.

Sugar.

4. Despite the extra work entailed in the drainage of the land during the heavy rains in the middle of the year, the returns on most of the sugar estates in the district have been satisfactory. At the autumn grinding the juice purity was lower than expected, but that may have been accounted for by the fact that some of the Estates did a small grinding in August when the crop was not quite ripe. The highest estate returns over the year still top the 4 tons per acre mark, while it has been reported that one field of D 66/30 gave a return of 6 tons per acre as plants.

5. The main point of interest in the Sugar census returns of 1937 was the drop in acreage from 26,374 acres in 1936 to 20,200 English acres in 1937. This figure includes 121 acres of farmers' cane grown at Rosehall Village, Courantyne, and ground at Plantation Albion. Of this acreage the following areas are planted to varieties other than D. 625.

Diamond 10	...	...	2,335 acres
P.O.J. 2878	...	...	4,280 "
D. 927	...	...	13 "
S.C. 12/4	...	...	76 "
D. 241	...	...	7 "
D. 11/28	...	...	18 "
Mixed	...	...	213 "

6. The sugar produced from the above area of cane was 77,012 tons, with 1,978,216 gallons mollasses, 743,860 gallons rum, and 71,540 gallons alcohol. This represents, in sugar, a yield of 3.21 tons per acre over the total sugar lands in Eastern Berbice which is lower than is generally reckoned but allowance must be made for the fact that this figure is given for tons per English acre and also for the fact that all the sugar in the district is not necessarily cut and ground in the year. There may be a portion of land on which the cane is drawn for planting material or a certain area may be held over into 1938.

Rice.

7. The quality of the rice grown in the district continues to improve each year and a survey made at the end of this year's crop from samples taken from the threshing floors throughout the district gave the mean result of 84.1% purity in the Demerara Creole variety and 87.6% in the No. 79 variety. The mean for D. 114 was 97% for the first season's distribution. This improvement is not in all cases an advantage as the principal market for the rice of the area is in the lower grades. It is, however, realised by the farmers that it is as cheap to grow a good type of padi as it is to grow mixed and low grades, and when the extra yield is taken into account then it is probably even more economical to grow the better varieties though the cost of the seed in the first instance may be a little higher than that charged for the mixed padi.

8. The acreage under this crop for the year 1937 has shown a great increase over the 1936 returns when an area of only 23,125 acres was grown. In the year review the total area in Eastern Berbice was 25,954 English acres with further estimated acreage of 500 acres for rice cultivated in the Upper Berbice, Upper Courantyne, and Canje Rivers. The yield obtained from this area despite the unfavourable weather conditions, has been returned at 516,841 bags which is an average yield of 19.9 bags per acre.

Coconuts.

Although there is a large area under coconuts in Berbice there is very little attention actually paid to the crop. The existing trees or palms, were planted by some farmer in the last generation and were apparently left for this generation to reap the benefit. Little work is done by way of cleaning the trunks of the old sheaths and consequently it has become a belief that the damage done by the stem boring caterpillar is unpreventable. This manner of looking at disease was also noticeable when an attack of *Brassolis* broke out in New Amsterdam during the year.

10. The price paid for copra, and consequently for nuts, has dropped back during the year. During the period under review there has been at least one exportation of dry nuts for planting purposes out of this colony. An attempt was made to see that some grading was done when selecting nuts for this shipment.

11. This crop is returned at 2,398 acres in the Eastern area of Berbice which is almost the same acreage as for that area in 1936. From this area there was a crop of 5,805,895 nuts recorded but this is far below the actual yield as most of the nuts in many districts are consumed by thirsty travellers, or used without the worry of keeping a record. From the crop there were 19,063 gallons of oil made and 3,000 lbs. copra.

Ground Provisions.

12. With the spread of the news of the forthcoming Agricultural Show in Berbice in 1938 there has been increased activity in the preparation and planting of land for those crops. Also around the sugar estates in the district there have been established numerous farms on which the labourer can, if he wishes, grow food crops to make up for any decrease there might be in the wages received during the period of restrictions. It is worthy of note that there were many farms given out on which no attempt was made at cultivation. The area returned for these crops, which has

been totalled, shows an improvement on the acreage for 1936, there being in 1937 2,791 English acres in Eastern Berbice.

Citrus.

13. The interest in this group of fruit is being maintained or even, with reference to the small private owner, slightly on the increase. Unfortunately many trees are neglected and die out or grow into an awkward shape and give no yield.

14. The following figures give the numbers of budded trees planted in this district during the years and the total number since 1930.

		1930—36.	1937.
Grape Fruit	...	1580	14
Oranges	...	673	129

With reference to limes, the greatest number are cultivated on Creeklands Estate, Plantation Providence, where lime oil, and concentrated lime juice are the main products. The total area under limes is 540½ acres and the produce recorded was 8,313 gallons concentrated lime juice and 5,109 lbs. lime oil.

Livestock.

15. There has been an increase in the interest paid to the sale of cattle and pigs during the year through the intermittent trips for cargo made by the Dutch ship to the wharves at Springlands and Providence. By the irregularity of these visits the trade is likely to be kept in a rather low state as no farmer or dealer can afford to take his stock to either of these wharves, keep them there for a few days, and then to take them away again unsold because the ship has changed its sailing.

16. The returns for Livestock for the year 1937 are as follows, showing comparisons with the figures for 1936:—

			1936.	1937.
Horses	...	...	328	408
Mules	...	...	399	521
Donkeys	...	...	2,446	3,389
Cattle	...	...	21,323	30,076
Buffaloes	...	...		58
Sheep	...	...	17,421	14,205
Goats	...	...	8,586	5,436
Pigs	...	...	10,694	7,767

DISTRICT WORK.

Sugar.

17. The cane trials carried out in Berbice during the year are dealt with in the report of the Cane Agronomist.

18. *Cane-farming*.—There is only one area properly classed as cane farming in this district, viz., that at the back of the village of Rosehall, Courantyne. This area is alongside the Estates of Port Mourant and Albion at which latter the canes are ground. The farmers are very dependent on the estate for the irrigation of their lands and for transportation of their canes from the field to the factory. A few farmers who have shown keenness have been supplied with, and have carefully extended, planting material of Diamond 10 and P.O.J. 2728 varieties during the last two or three years but many farmers do not, in the slightest degree, worry with their cultivations and scarcely give the land sufficient weeding for the minimum of growth.

Rice.

19. *Distribution of pure line seed padi*.—During the year the Department in Berbice distributed to farmers a total of 99 bags of pure line Demerara Creole seed padi and 683 bags of No. 79 pure seed line padi. There were also distributed to a few selected farmers on the Upper Courantyne Coast 15 bags of D.114 seed padi for

trial and demonstration. The bags are all 140 lb. net. The seed padi was distributed widely throughout the area, there being buyers from the left bank, Abary, the entire West Coast Berbice, the East Bank, Berbice as far as Macaw, almost the whole length of East Canje (due to the assistance in distribution given by the management of Plantation Rosehall), and on the Courantyne Coast as far as Jackson and Moleson Creeks.

20. The interest taken in the growing of pure line varieties is encouraging but it is a very hard task to educate the farmers to the idea of reserving their seed requirements for the next crop. There is no shortage of accommodation. In this district it has long been the custom of the farmers to store the padi (which they do not mill immediately after harvest) to meet their more pressing creditors, in bonds in or under their homes and to mill only a few bags at a time as the necessity arises. At the end of the year there were on hand in bonds at Springlands, Whim, New Amsterdam, and Plantation Bath a total of 458 bags of (of 140 lb.) of pure line seed padi made up of the following varieties:—

Demerara Creole	...	35 bags.
No. 79	...	303 „
D 114	...	97 „
Kalyaman	...	21 „

		458 bags.*

21. *Pure Line Seed Blocks.*—At Whim sub-station there were cultivated during the year two acres of Demerara Creole padi (still the farmers' favourite in that district), one acre of D.114, one-half acre of Kalyaman, and one-half acre of No. 79. This crop was very carefully rogued in each field and when harvested the padi was threshed by machinery. The total yield was 116 bags (140 lb.) of clean padi; the thresher used, threshes, winnows, and bags off in one operation. This total yield is only four bags short of an average of thirty bags per acre. At Plantation Rosehall, through the courtesy of the Manager, a field of 4 acres was grown with pure line No. 79. This was also very carefully rogued and, when reaped, gave a yield of 110 bags seed.

22. To ascertain the extent to which pure line seed had affected the quality of the padi generally grown throughout the district a survey was made at the end of the autumn crop which revealed the following position, as at December 31, 1937.

Name of Estate.	No. of Samples.	Acres with which samples dealt.	Purity of Padi. %
Lichfield	9	17 acres	66.4 %
Bellevue	7	65 acres	79.6 „
Lovely Lass	1	...	90 „
Prospect	1	4 „	99.5 „
Pln. Port Maurant	1	7 „	92 „
No. 2 Canje	3	11 „	84.1 „
Letterkenny	29	85 „	89.1 „
Bloomfield	29	201½ „	80 „
Auchlyne	23	69½ „	87.1 „
Whim	52	188½ „	95.3 „
Lancaster	27	100 „	93.5 „
Manchester	15	92 „	81.4 „
Liverpool	16	63½ „	80.4 „
Alness	42	123½ „	75.7 „
Salton	7	23 „	87.1 „
No. 57	3	4 „	91 „
No. 58	4	5 „	91.8 „
No. 59	1	...	92 „
No. 60	1	3 „	71 „
No. 63	1	...	84 „

Rice.

Variety Trials.—There were three trials carried out in this district during 1937, viz., one transplanting trial at Whim substation and two broadcast trials at No. 63 Courantyne and Plantation Bath, West Coast, Berbice.

* Of 140 lb. each.

(a) *Whim transplanting trial*.—In this trial there were varieties of which two *viz.*, Demerara and No. 79, have already established a name for themselves in this district. Of the others D114 is a favourite in West Demerara and the others are comparatively unknown. The nurseries were sown—after a delay caused through malicious interference with the seeds while soaking prior to sowing—on May 27 and the growth made in the nurseries was normal. As often happens at that time of the year, water had to be bailed out of the nurseries to prevent flooding, and caterpillars (*Laphygma frugiperda* S. and A.) did a certain amount of damage. The nursery space was the customary seven square rods for the acre planted.

The plants were pulled on July 9 and transplanted on July 10 to land which had previously been prepared by two ploughings and one raking. The layout was a square of eight by eight of which each plot was 1/80th of an acre, *i.e.* 23 ft. 4 ins. x 23 ft. 4 ins. with an eighteen inch border between adjacent plots. Transplanting had been arranged for the previous week but at that time there was about 3 ft. of water on the land. The plants made normal growth. The most luxuriant foliage was noted in D. 99 while No. 79 was shortest.

Reaping was done on November 9 and hand threshing was done immediately. All plots were reaped at this date except D.99 which ripened 7—10 days later and thus coincided with a wet weather spell which made handling much more difficult and costly.

On winnowing and drying the following results were obtained :—

VARIETY	AVERAGE YIELD FOR EIGHT PLOTS	
	Bags (of 140 lb.) per acre	Percentage.
Kalyaman ...	... 36.39	108.08
Demerara Creole ...	... 35.4	105.14
D110 ...	... 34.96	103.46
D114 ...	... 34.53	102.55
D91 ...	... 33.6	99.79
D109 ...	... 33.14	98.43
No. 79 ...	... 32.89	97.68
D99 ...	... 28.64	85.06
Mean ...	... 33.69	100
Standard Error ...	096	.285

From the above results it may be noted that on irrigated land, with transplanted padi, the long grain varieties, Demerara Creole and Kalyaman, came out best with D110 and D114 of the medium grain class next in order.

(b) *Broadcast trial No. 63 Courantyne*.—The same varieties were used in this trial as in the above and the layout was the same 8 x 8 Latin square. Owing to the configuration of the land it was impossible to lay out a square but the plot consisted of two rows of 32 plots each. The land was prepared in the customary manner in that area by being ploughed and raked (harrowed) dry.

Sowing took place on April 20 when a heavy seeding was used to overcome grass and weeds which normally cause much trouble in that area. At sowing and immediately after, careful attention has to be paid to the drainage of the plots to prevent rotting of the seeds. Growth is mainly dependent on rainfall. Weeding of the plots became necessary through rather delayed growth of the seedlings and was carried out on May 28 and following days.

Reaping of the plots took place on October 6-9 when the following results were obtained. Harvesting and threshing were slow owing to labour shortage as most of the farmers were engaged with their own rice cutting.

Variety.	Average yield for eight plots.		
	Bags (of 140 lb.) per acre.		Percentage.
D114	...	33.3	107.14
D99	...	32.4	104.24
Demerara Creole	...	32.1	103.28
D110	...	31.3	100.70
No. 79	...	30.4	97.81
D91	...	30.1	96.84
Kalyaman	...	30	96.52
D109	...	29.1	93.62
Mean	...	31.08	100
Standard Error	...	3.35	10.7

As may be seen from the results, the varieties which did best on this area where water is scarce in some seasons, were of the shorter grained class. The varieties in the first five places were the same as in the Whim trial with the exception of D99. The order of merit has altered however. In a broadcast trial of this type where the irrigation is irregular, *i.e.*, where the water is in some periods insufficient and at others in over abundance, where the land configuration is not exactly level, and where finally, the seed is sown by hand and thus not always evenly spaced, there must be a higher error than is to be obtained in a trial where most growth factors are under control. Despite strenuous supervision the standard of labour obtainable on the stations at which broadcast trials are run is not always conducive to accurate results. The land for this trial was rented through the co-operation of Mr. Rohaman proprietor of No. 63 estate.

(c) Broadcast trial West Coast Berbice. Through the courtesy of the Manager an area of approximately one acre was laid out in an 8 x 8 Latin square at Plantation Bath. This was a trial similar to that at No. 63, Courantyne. The plots were sown in four rows of twenty-one plots each.

The seed was sown during week ending May 8, 1937. Germination was average and growth progressed satisfactorily.

The irrigation was faulty for optimum growth as the plot was so situated that when irrigation water was taken in the 'sour' water already in the trenches and on the adjacent lands (nearer intake koker) had to pass over the plot as the fresh water pushed it to the outlets. This rather hampered growth in the middle of the season.

Reaping, owing to the distance of the plot from the railway and public road, was a lengthy, costly, and laborious operation. It was carried out between November 18 and 25.

Variety.	Average yield for eight plots.		
	Bags (of 140 lb) per acre.		Percentage.
D114	...	17.4	108.82
D99	...	15.93	105.71
D109	...	15.3	101.52
No. 79	...	15.1	100.19
Demerara Creole	...	15.1	100.19
D110	...	14.57	96.68
Kalyaman	...	13.93	92.44
D91	...	13.28	88.12
Mean	...	15.07	
Standard Error		5.1	

Although the results of this trial show no significant difference it is worthy of note that the order of merit of the varieties varies little from that obtained in the above broadcast trial in the first five places, with the exception of D109, which in this trial is third and in the other is seventh. The most noticeable feature in the figures given is the fact that both Demerara Creole and No. 79 secured fourth place—the latter a 'high-land' padi and the former a 'deep-water' padi.

24. It is worthy of note here that the two varieties already well established in the district *i.e.*, Demerara Creole and No. 79 are both capable of holding their own against the newer varieties. At the same time it is noticeable that on irrigated lands Kalyaman gave a yield of 36 bags per acre and stood up well to the local conditions. In both the broadcast (sbied) trials on unirrigated land D114 headed the list. This padi mills into a very nice sample of rice for which buyers have a liking and it is intended distributing a quantity to farmers during the coming crop.

Padi Competitions.

25. There were five of these Competitions arranged for Berbice district for the year 1937. Of the three on the West Coast, Berbice the entry was so poor that it was decided to abandon the competitions. Of those on the Courantyne, the one in the Lower Courantyne area chiefly centred at Plantation Providence where the cultivators showed a keen interest in the growing of pure line seed and the reservation of that seed for the next crop.

26. At the final judging there were five entrants whose padi was of a very high quality. It was decided to divide the prizes and the awards were made as follows :—

1st Prize	Nanwah	...	...	\$10
2nd Prize	Jacob	}	...	\$ 7 50 each.
2nd Prize	Satnarine			
3rd Prize	Roojon	...	...	\$ 5 00
4th Prize	Ramdas	...	...	\$ 3 00

27. On the Upper Courantyne, although the entrants were many at the beginning (*viz.* 36) the number fell away very quickly as the cultivators failed to comply with the conditions of the competition. The weather also was against the farmers in this particular case as the very heavy rains at the beginning of the rice season seriously hampered the cultivations. Ducks, too, do a lot of damage to rice in this particular area and many nurseries were lost and were resowed with mixed padi. Farmers apparently misunderstand the conditions of these competitions as there are some who think that so long as they can produce a good sample of padi then they are bound to get the prize. The marks which are totalled to ascertain the prize winners take into consideration the making of the nursery, the condition of the field into which the rice is transplanted, whether the farmer rogues his padi to obtain a high grade padi or not, the yield of padi obtained, and lastly perhaps the most important condition—how much padi the farmer stored for the next crop.

28. In this competition one prize was awarded—Jagnandan \$10.

School Gardens.

29. There are now thirteen of these gardens which are registered as aided school gardens, in this district. It is very unfortunate that, although seven of these were registered at the beginning of the school term in September, yet no money for the construction of fences, etc., was allocated until much later in the year. This resulted in much of the work being carried through rather later than was advisable for catching the season at the end of the year and before the school closed for the Christmas vacation.

30. First year gardens *i.e.* those started in 1936 and before.

(1) *Edinburgh Scots School East Bank Berbice.* Under the headmastership of Mr. Fraser, who also took the Agricultural Bias training at Georgetown, this garden has progressed until it has been able to attain to second place in the schools of the colony. The garden has been extended during the year and it is hoped to plant a certain number of permanent crops around the fences. The land at this garden is of a very heavy nature and difficult to work but with the addition of a humus, good crops are obtainable.

(2) *New Amsterdam Roman Catholic Boys.* The only site obtainable for this garden was a piece of land in the same street as the girls' school. It is removed from the school but not by any distance. The garden began in 1936 and work was done in the garden and in the flower garden in front of the boys' school until the end of the Summer term of 1937. It was then realised by the Headmaster (Mr. Crawford), who is also the agricultural bias teacher, that the shortage of staff from which his school suffered did not allow of his full attention to the garden work. He, therefore, suspended work until such time as his school is fully staffed.

(3) *Albion Canadian Mission School* was registered as an aided garden in 1936, but owing to the pending removal of the school to a new site it was considered best to wait until that site was fixed before laying out a garden. This was not done until the middle of 1937, when fencing was done and the land forked ready for working. Unfortunately, at that time the agricultural bias teacher was acting headmaster and he found it impossible to carry the two works. It is hoped, however, that the regular curriculum will be entered upon at the beginning of 1938.

(4) *Port Mourant Roman Catholic School* garden is on a very small site at the side of the Church. It is on land of a sandy nature and though it is easy land to work it is at the same time land which is very difficult to fork into tidy beds. There is no water at this site but it is hoped that this difficulty will be overcome when the well at Rosehall is reconditioned. The boys appear to be keen but there is a feeling among the parents of the boys that their sons will be stricken down with some fell disease if they should work in the garden and then go into the school while still hot.

(5) *Auchlyne Scots school* has its garden in the confines of Whim sub-station where it has been established for the past four or five years. Recently, owing to the drafting into the agricultural bias class of another fifteen boys, it was considered necessary to extend the garden. As this was not possible at the former site a new one was selected on the reef at the southern side of the Experiment Station. The soil here is better than that on the old site and as the work of breaking in the land has been done for the boys, it is hoped that they will now exert themselves and make this site a success.

(6) *New Market Anglican.*—The site of this school garden is too far removed from any water supply, until such time as there is a pipe line run from the well at No. 63, for the garden to show any great progress. During the year under review there has been an experiment with ground nut cultivation and the result was sufficiently promising to encourage the teacher to repeat the trial in the next year. The variety chosen for trial in 1938 is *Virginia Bunch*.

31. Second year gardens, *i.e.*, started in 1937. At the beginning of the Autumn term 1937 the following schools were registered as being suitable for aided school gardens.

(1) *Skeldon Anglican.*—After a poor start had been made work was suspended entirely owing to the shortage of teachers.

(2) *Massiah Canadian Mission School.*—Preparations were in hand for the establishment of a garden at this school despite the fact that good land is scarce in the vicinity. The programme was held up, however, through insufficiency of teachers.

(3) A piece of land has been marked out and fenced at Manchester Scots school for the purpose of a garden and it is hoped that the work will be pushed ahead as soon as the school takes up after the holidays at Christmas. The site is not an ideal one but is the only one in that area which is not flooded in the rainy season. The site has the advantage over many other school gardens in that it is situated near the school.

(4) An experiment in fencing the garden with coconut leaf mid-ribs, as is the custom in the district, has been attempted at the garden attached to the St. Columba's Scots School at No. 1 Courantyne. The site for this garden is near to the school and ought to have every advantage as the headmaster, who is also the agricultural bias teacher, is a very keen gardener.

(5) At Rosignol Government school, West Coast, Berbice, a small plot of land near to the school was obtained—or rather permission was obtained from the local authority to cultivate a piece of land near to the school. The garden was laid out at the close of the winter term and it is to be hoped that good progress will be made as soon as the new year begins.

(6) Lichfield school garden is some little distance from the school but a good piece of land has been fenced in through the generosity of the proprietor of Moor Park estate. The garden has been fenced, forked and the beds are ready for the school children to start work as soon as the term begins.

(7) Probably the best site in the district has been obtained at Belladrum where, through the courtesy of the Church, the garden has been made in the vicarage grounds. There is a strong paling around this garden which should lessen the temptation to sample the garden crops so noticeable in some areas.

CO-OPERATIVE CREDIT BANKS.

32. In Berbice there are eight of these Banks although means of closing one were on hand at the end of the year. Of the others the Chairmanship of the four on the Courantyne was in the hands of the Agricultural Superintendent for the whole year, *i.e.*, Mr. Macluskie, Mr. Abraham, and from May until December, Mr. Gillespie. Of those on the West Coast, Berbice, the supervision was done from Georgetown by Mr. Douglas, Assistant Registrar of Banks, until September when the chairmanship again reverted to the Agricultural Superintendent, Berbice.

33. Of these Banks it may be generally said that those on the West Coast Berbice are in a very precarious position due mainly to the fact that there has been a long succession of scarcely profitable rice crops which has resulted in the building up of a large debit balance against most of the members. Chiefly owing to the same reasons, the value of the borrowers' security has fallen, not so much in actual value but in its selling value.

34. The Banks on the Courantyne Coast on the other hand, excepting that at Eversham, are in a healthy and progressive condition. At these Banks there are members who apart from their farms, can always depend on work if they want it. This enables the repayment of loans even after a bad year.

PLANT PESTS AND DISEASES.

35. The only pest of any consequence which has attacked plants during the year was in evidence in New Amsterdam when a widespread outbreak of Coconut Caterpillar (*Brassolis*) occurred. Assistance in combating the attack was forthcoming from the Entomological Division from which an officer was seconded to Berbice. This officer, with the co-operation of the owners of palms, was able effectively to check the spread of the pest and to clean up the trees and so lessen the likelihood of another severe attack in the near future.

36. The common foe of the rice crop, the Padi bug (*Mormides poecila*), was not much in evidence this year although a few fields in scattered areas were attacked.

EXPERIMENT STATIONS.

Sub-station Whim.

37. During the year the distribution of seeds and planting material from this station has continued.

38. In the beginning of the year the usual vegetable crops, which have now been experimented with for from four to five years were continued. During the middle part of the year the station was under green manure cover crops as being the most suited to the season. As the end-of-the-year rains were very late in commencing it was not possible to put out any vegetable crops during the latter part of the year as, ordinarily, the weather is much too hot. A report on the various trials with Legumes at this station has been published in the *Agricultural Journal*.

39. The following figures show the extent of seed distributed at this station during the year.

Peas and Beans (Edible)	...	159 lbs.
Tobacco (Seed) ...	...	3 lbs.
Tomato (Seed) ...	...	6 ozs.
„ (Seedlings) ...	...	900
Assorted Vegetable Seed	...	5 ozs.
Legumes (Cover Crops)	...	5 lbs.
Soya Bean ...	...	2 lbs.
Boulanger (Seed) ...	...	5 ozs.
„ (plants) ...	...	1,098
Cauliflower (plants) ...	...	6
„ (fruit) ...	...	6 only.

Sub-station Macaw.

40. This station is under West African Oil Palms (*Elaeis sp.*) which were planted in 1932 from seed obtained from Sumatra. There are 130 palms which have now reached a height of about 15 to 18 feet on an average. Some of the larger palms have fruited this year for the first time but the bunches are so small and so badly affected by mildew that the crops may be regarded as negligible.

MISCELLANEOUS.

41. Visitors.—His Excellency the Governor visited the district on the occasion of the Coronation celebrations and took up residence at the Colony House. His Excellency the Officer Administering the Government visited Berbice in July.

42. The Director of Agriculture and the Deputy Director of Agriculture made tours of inspection during February, June, July and October, 1937. Other officers of the Department who visited Berbice were met and matters dealing with the district discussed.

43. Public Gardens.—The Public Gardens, New Amsterdam, have been maintained in as good condition as possible with the small allocation available. An attempt is being made to space the shrubs and display them more advantageously.

44. Demonstration Apiaries.—The three apiaries established in 1936 continue to thrive and serve as sources of nucleus hives in the district.

45. Acknowledgments.—The co-operation of the Staff in the carrying out of the above work is sincerely appreciated.

JAMES D. GILLESPIE,
Agricultural Superintendent,
Berbice.

March 10, 1938.

DEPARTMENT OF AGRICULTURE.

REPORT OF THE EAST DEMERARA DIVISION FOR THE YEAR 1937,

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REPORT OF THE EAST DEMERARA DIVISION FOR THE YEAR 1937.

STAFF.

E. M. Peterkin	—Agricultural Superintendent.
C. C. Dowding	} Agricultural Instructors.
W. A. Bovell	
J. Indrobeharry	—Agricultural Assistant.

GENERAL.

Mr. E. M. Peterkin, Agricultural Superintendent, acted as Deputy Director from January 1 to May 7. He supervised the work of the Rice Station from January 1 to December 31, pending the appointment of a Plant Breeder.

2. Mr. C. C. Dowding, F.L.S., F.R.H.S., Agricultural Instructor, Lower East Coast, was absent from the Colony on vacation leave from May 25 to December 6, during which time Mr. W. A. Bovell performed his duties, with the exception of the Co-operative Credit Banks at Golden Grove, Victoria and Ann's Grove, the Chairmanship of which was assumed by the Agricultural Superintendent, and the School Gardens of Plaisance and Buxton which were supervised by Mr. Dewar of the Georgetown Rice Station.

CROP CONDITIONS.

Sugar.

3. The restriction of the area under sugar cane was a severe blow to cane farmers and put an end to extension of the crop; this was unfortunate as considerable work had been put in in recent years to interest villagers in cane farming with some success. A census of all individual areas was taken in each village and a register opened for future reference. Weather conditions during the year have been favourable and yields have been fair.

Rice.

4. The spring crop was as usual small.

Autumn Crop—In the Mahaica-Abary District the planting was very late, but the crop was taken off in good time and was the best as regards yields for many years; the quantity is also rapidly improving. On the Lower East Coast a few places planted in good time, but the majority were late; the yields on the whole were good. Pln. Hope still maintains its high standard of purity.

EXPERIMENT STATION, GEORGETOWN.

Ground Provisions and Vegetables.

5. *Bananas*.—The collection remains the same as it was in 1933, viz.: Apple, Red Fig, Jamaica, Sucre, Cayenne, Gros Michel, Dwarf, Giant Fig, Congo, Lacatan, Large Fig, Small Fig, Sour Fig, Cocorite, Chan-A-Sue (N.W.D.), Martinique (N.W.D.), Red Jamaica, Lady's Finger, Almedo, Dacca, Rubra, (India), Siam, Palembang, Ramkola, Celat, Serah (Indian Archipelago), Rajah (India), Martaban, Pisang Su-Su (Singapore), Cinera Seramphur and Martabanica. The entire collection was replanted in beds 3 and 4, Section C, South Field.

6. The Dwarf and Gros Michel bananas planted in the flood-fallowed section continue to fruit, but the bunches have reduced in size and quality. Records are being kept of the number of hands and weight of each bunch. The clumps are still being carefully pruned.

7. *Plantains*.—The collection remains the same as previously listed, viz.:—Apple, Surinam, Horse, Giant, Black, Pink, White. These have also been replanted in bed No. 3, Section C, South Field.

8. *Cassava*.—The collection of varieties and types mentioned in the 1935 report is being kept up and added to as occasion permits; these are now in beds 6 and 7, Section C, South Field.

Mangoes.

9. The collection of grafted mangoes planted in South field is making satisfactory growth; a few are backward. The collection now consists of the following :—

Julie	...	...	...	24
Mrs. White	...	...	...	3
Jamaica No. 11	...	...	...	5
Mrs. Dare	...	...	...	1
Graham	...	...	...	2
Pere Louis	...	...	...	3
Bombay Black (Essequibo)	...	...	...	3
Peach	...	...	...	4
Bangalore	...	...	...	1
D'Or	...	...	...	3
Ceylon	...	...	...	1
Colonial Bank	...	...	...	1
Clementi	...	...	...	1
Divine	...	...	...	1
Peters or Bombay	...	...	...	1
Lorieau	...	...	...	1
Cambodiana	...	...	..	2
Cherie	...	...	...	2
Gordon	...	...	...	2
Bombay Purple	...	...	...	2

The old collection on the fruit dam and nurseries consist of the following varieties :—No. 11, Rowland, Canal, Egerton, Chinoyse, Madam, Balangore.

Tobacco.

10. Owing to a severe attack of Mosaic in 1935 no tobacco was grown on the Station this year.

Green Manures.

11. *Indigofera endecaphylla*.—This is undoubtedly the most satisfactory of all the legumes tried as a cover crop for orchards, coconuts, etc., as well as being very useful as a fodder grown between Guatemala Grass, etc.; an extensive area of this is being grown and small areas of the following :—

Crotalaria spectabilis, *C. usaramoensis*, *C. striata*, *C. sp.*, *Indigofera hirsuta*, *I.sp.*, *Dolichos hosei*, *Centrosema pubescens*, *Calapagonium mucunoides*, *Pueraria javanica* and *Tephrosia hookeriana*.

Pigeon Peas.

12. The collection became so mixed by natural crossing that it was decided to stick to the one best variety, viz. Trinidad White; this is now growing in beds 1 and 2, Section B, South Field.

Papaws.

13. The varieties now under cultivation are Panama and the Walcott x Panama cross; the other varieties have been discarded. A selection from Essequibo, obtained this year, is also being tried.

Chilli Peppers.

14. Seventeen selections are at present under cultivation; the plots were sown on May 1. There are none of any outstanding excellence.

RICE EXPERIMENTS.

15. *Padi* grown on the Central Rice Experiment Station during 1937.—A record of the padi grown on the Central Rice Experiment Station, Georgetown, during 1937 is shown in Table I below :—

TABLE I.

Variety.	Autumn Crop Lb.
No. 79 ...	33,206
Demerara Creole... ..	14,583
Kalyaman	3,777
D 114	4,319
D 88	941
D 89	308
D 90	351
D 91	1,273
D 92	700
D 97 B	893
D 99	769
D 109	857
D 110	1,169
D 115	670
D 116	407
D 221	882
D 228	484
B 1	340
B 3	296
B 4	287
B 6	294
Progeny Rows and Hybrids ...	1,487
Total	68,293

16. *Variety Trials No. 1 to No. 5 conducted at Georgetown.*—The results of variety trials No. 1 to No. 5 laid down at the Central Rice Station are summarised in the following tables, as supplied by the Assistant Plant Breeder :—

TABLE II.

RESULTS OF VARIETY TRIAL No. 1.

Date Sown: April 28, 1937.				
Date Transplanted: June 3, 1937.				
Date Reaped: October 13, 1937.				
Layout: One 10 x 10 Latin Square.				
Variety.	MEAN YIELDS OF PADI.			Per cent of Mean.
	Lb. per plot.	Lb. per acre.	Bags per acre.	
D 114	44.85	3,588	25.6	114.4
D 221	40.65	3,252	23.2	103.7
D 97 b	40.33	3,228	23.1	102.9
Demerara Creole	39.90	3,192	22.8	101.8
D 109	39.55	3,164	22.6	100.9
D 91	39.50	3,160	22.6	100.7
No. 79	38.65	3,092	22.1	98.6
D 88	37.30	2,984	21.3	95.1
Kalyaman	37.00	2,960	21.1	94.4
D 228	34.40	2,752	19.7	87.7
Significant Difference $P = 0.05$...	4.99	399.52	2.95	12.73

TABLE III.
RESULTS OF VARIETY TRIAL No. 2.

Date Sown:	May	24, 1937.		
Date Transplanted:	July	4, 1937.		
Date Reaped:	October 28, 1937.			
Layout:	One 8 x 8 Latin Square.			
Variety.	MEAN YIELDS OF PADI.			Percentage of Mean.
	Lb. per plot.	Lb. per acre.	Bags per acre.	
D 99	48.00	3,840	27.43	123.3
D 92	41.25	3,300	23.57	105.9
D 116	41.12	3,290	23.50	105.4
D 110	39.00	3,120	22.29	100.2
D 88	38.37	3,070	21.93	98.6
D 90	35.81	2,865	20.46	92.0
Demerara Creole	34.31	2,745	19.61	88.1
No. 79	33.62	2,690	19.21	86.4
Significant Difference P = 0 .05	4.04	323.52	2.31	10.4

TABLE IV.
RESULTS OF VARIETY TRIAL No. 3.

Date Sown :	May	24, 1937.		
Date Transplanted :	July	1, 1937.		
Date Reaped :	November 1,	1937.		
Layout :	One 8 x 8 Latin Square.			
Variety.	MEAN YIELDS OF PADI.			Percentage of Mean.
	Lb. per plot.	Lb. per acre.	Bags per acre.	
D 115	33.69	2,695	19.25	111.3
D 221	31.94	2,550	18.21	105.3
D 109	30.75	2,460	17.57	101.7
D 89	30.31	2,425	17.32	100.2
Demerara Creole	29.00	2,320	16.57	95.9
D 92	29.00	2,320	16.57	95.9
D 110	28.50	2,280	16.29	94.2
No. 79	27.06	2,165	15.46	89.5
Significant Difference P = 0.05...	...	...	...	...

TABLE V.
RESULTS OF VARIETY TRIAL No. 4.

Date Sown:	May	24, 1937.		
Date Transplanted:	June	24, 1937.		
Date Reaped:	October	25, 1937.		
Layout:	One 7 x 7 Latin Square.			
Variety.	MEAN YIELDS OF PADI.			Percentage of Mean.
	Lb. per plot.	Lb. per acre.	Bags per acre.	
D 114	46.0	3,680	26.29	124.4
D 1	38.86	3,109	22.27	105.1
Demerara Creole	38.29	3,063	21.88	103.1
B 3	35.14	2,811	20.08	95.1
No. 79	34.07	2,726	19.47	92.2
B 6	33.43	2,674	19.10	90.4
B 4	33.0	2,640	18.86	89.3
Significant Difference P = O .05 ...	2.42	193	1.38	6.6

TABLE VI.
RESULTS OF VARIETY TRIAL No. 5.

Date Sown:	May	24, 1937.		
Date Transplanted:	June	27, 1937.		
Date Reaped:	October	20, 1937.		
Layout:	One 7 x 7 Latin Square.			
Variety.	MEAN YIELDS OF PADI.			Percentage of Mean.
	Lb. per plot.	Lb. per acre.	Bags per acre.	
D 115	37.86	3,029	21.6	118.4
D 99	34.21	2,737	19.5	107.0
Demerara Creole	32.79	2,623	18.7	102.6
D 97 b	32.29	2,583	18.5	101.0
Kalyaman	30.50	2,440	17.4	95.4
No. 79	28.29	2,263	16.2	88.5
D 91	27.86	2,229	15.9	87.1
Significant Difference P = 0 .05	3.57	285.79	2.04	11.2

As will be seen from the above tables, the old varieties Demerara Creole and No. 79 did not do as well as some of the new ones, namely, D 114, D 99, D 115 and D 221.

SUB-STATION CECILIA.

17. The work of this sub-station has been satisfactorily maintained. The number of visitors during the year was 864.

Tomatoes.

18. Plots of the following varieties were sown in November 1936:—Early Market, Marglobe, Glovel, Guernsey, and Early Scarlet. The results are given in Table VII.

TABLE VII.

Variety.	Country of Origin.	Date Sown.	Date Transplanted.	Reaping Period.	No. of Stems.	Area Sq. ft.	Yield per Plot Lbs.	Yield per Acres Lbs.	Prevalence of Blossom-end Rot.	Prevalence of Mosaic.
Early Market ...	England	4.11.36	1.12.36	1.2 to 12.4.37	2	864	129	6,504	Very slight do.	Very slight do.
Glovel ...	England	4.11.36	1.12.36	5.2 to 12.4.37	2	576	50	3,764	Very slight do.	Very slight do.
Guernsey Champion ...	Channel Islands	4.11.36	1.12.36	1.2 to 12.4.37	2	228	57	10,890	Nil	Nil
Marglobe ...	U.S.A.	4.11.36	1.12.36	5.2 to 12.4.37	2	576	39	2,949	Very slight do.	Very slight do.
Early Scarlet ...	England	19.11.36	1.12.36	5.2 to 12.4.37	2	228	34	6,496	Very slight do.	Very slight do.

19. The first four varieties were resown on April 5, and transplanted on May 15, but these plots were so badly attacked by Mosaic that very few fruit were obtained and those of poor quality. The following varieties:—Guernsey, Marglobe, Early Market and Glovel, were sown on November, 1, and transplanted on November 28, 1937. Early Market and Guernsey Champion are similar in type, being of medium size and popular for ordinary market demands.

Onions.

20. The following table given the results of varieties tried out during the year

TABLE VIII.

Variety.	Country of Origin.	Date Sown.	Date Trans-planted.	Date Reaped.	Area sq. ft.	Yield per Plot. lb.	Yield per Acre. lb.
White ...	Teneriffe ...	3.11.36	8.12.36	6.4 to 25.4.37	606	54	3,881
Red ...	Teneriffe ...	3.11.36	8.12.36	6.4 to 25.4.37	288	35	5,294
Red Bombay	Montserrat ...	7.12.36	...	13.3 to 23.3.37	288	20½	3,101
Red Madras	Montserrat ...	7.12.36	...	13.3 to 23.3.37	95	8	3,668
Red Madras	Montserrat ...	17. 8.37	...	22.11.37	288	47½	7,184
Red Bombay	Montserrat ...	17. 8.37	...	22.11.37	288	46½	7,033
White Eschalot	Local ...	17. 8.37	...	22.11.37	576	76	5,747
White ...	Teneriffe ...	29.10.37	9.12.37	...	864	...	...
Red ...	Teneriffe ...	29.10.37	1.12.37	...	120	...	...

21. The Teneriffe onions were planted from seed and the others from bulbs. The former suffered badly from excessive rains.

Ground Nuts.

22. *Virginia Bunch*.—A small quantity of this was obtained in November 1936 and was sown on an area of 1,584 sq. feet on November 20; this was reaped on March 31, 1937 and yielded 74 lb. or 2,035 lb. per acre. An area of 1,440 sq. feet was sown on April 26, reaped October 19, and yielded 82 lb. 14 oz. or 2,507 lb. per acre.

A further area of 1,884 sq. feet has been sown on November 3, 1937. All of the nuts not required for resowing were distributed to farmers.

Soya Beans.

23. The following table shows the results obtained during 1937 :—

TABLE IX.

Variety.	Crop No. 1.		Crop No. 2.		Crop No. 3.		3 Crops Combined.	
	Yield per acre. lb.	Order of merit.	Yield per acre. lb.	Order of merit.	Yield per acre. lb.	Order of merit.	Yield per acre. lb.	Order of merit.
Nanksoy ...	1,123	2	1,656	2	846	1	1,202	1
O.A.C. ...	682	3	1,710	1	414	4	935	2
Caracas ...	1,260	1	1,297	4	0	6	852	3
Mandarin ...	184	6	1,362	3	497	2	681	4
Manchco ...	294	5	1,039	5	450	3	594	5
Wisconsin ...	461	4	626	6	294	5	460	6
Significant Diff, P= .05.	474		474		474		156	

DISTRICT WORK.

Cane Farming.

24. A census of cane farmers and the areas under cultivation has been taken in all the cane farming villages and registers opened; no new areas are to be planted unless the Agricultural Officer and the sugar estate concerned are satisfied that a similar area has been thrown out. A check will be taken once a year by a District Officer and a representative of the estate jointly.

25. During the year the following cuttings were obtained from the Sugar Experiment Station and distributed free :

Diamond 10	...	...	12,740
P.O.J. 2878	...	...	7,410
Total			20,150

Rice.

26. The standard in the quality of padi grown continues to improve. The quantities of seed distributed during 1937 are as under :—

Seed grown in District Block	...	125 bags (of 140 lb.)
Seed grown at Central Rice Station	...	434 bags („)
Purchased	...	170 „ („)
		729 bags.

27. A six-acre block of pure line No. 79 was grown at Pln. Nonpareil and yielded $111\frac{1}{2}$ bags. of 140 lb. each.

Coconuts.

28. The *Brassolis* attacks this year have not been very severe, control methods are being more seriously taken. The Beetle Borer was present in the Golden Grove area and the damage done to the palms is very obvious. Cultivations generally are being better looked after.

Plantains.

29. Beetles are still a pest in some areas; considerable loss is experienced due to the disfigurement of the fruit. There was quite a shortage in the early half of the year, but this has automatically adjusted itself. Fair prices are being paid for clean fruit.

Minor Crops.

30. *Ground Provisions*.—The area remains stationary. There was a shortage in the early half of the year; conditions are now normal.

31. *Tomatoes*.—On the whole, farmers are not inclined to take the necessary care and trouble which the better varieties demand and improvement in quality leaves much to be desired.

32. *Onions*.—The demand for seed this year was greater than usual. Some farmers obtained good results.

33. *Peas and Beans*.—The position remains unchanged; they are not taken seriously as a crop.

Lodge Allotments.

34. Of 140 allotment-holders who held beds at the beginning of the year, 42 failed to pay their rent and were made to quit. Very few of the remaining farmers seem to take any interest in their farms, and half the area is in a semi-abandoned condition.

School Gardens.

35. There are now four aided School Gardens in this district, one having been established at the Golden Grove Methodist School at the end of the year; it is hoped to start planting this when the school opens in January. The aided gardens in actual operation at the close of the year are St. Paul's C. of E., Plaisance, Friendship Methodist, and Cane Grove C. of E.

36. The Plaisance Garden is undoubtedly the best. The unaided garden at Unity deserves a special word of praise.

CROP PESTS.

37. *Sugar Cane*.—*Aphis* is still prevalent at Beterverwagting, although not as bad as in previous years.

38. *Rice*.—The nursery looper caterpillar was frequently seen, but sweeping quickly controlled them. Birds were worse than usual.

39. *Coconut Brassolis* was evident in the usual areas but control measures were more efficient this year, so that little damage resulted. The beetle borer ("Cockles") has caused some loss.

40. *Plantains and Bananas*.—Beetles continue to be a serious cause of loss to farmers.

CO-OPERATIVE CREDIT BANKS.

41. The Agricultural Superintendent continued the Chairmanship of the Plaisance-Sparendaam, Bererverwagting-Triumph and the Buxton-Friendship Co-operative Credit Banks during the year and also assumed the Chairmanship of the Ann's Grove, Golden Grove and Victoria Banks during the absence on leave of the Agricultural Instructor Mr. C. C. Dowding from May 25 to December 6.

42. Monthly meetings were held at each bank and numerous visits had also to be paid to deal with other business. A drive has been made to collect long outstanding loans up-to date; this has not been as successful as desired but will be continued in 1938.

AGRICULTURAL EDUCATION.

Competitions.

43. Two rice competitions were held, one on the Lower East Coast and one on the Upper.

The one in the Mahaica to Abary area fell through on account of unfavourable weather conditions. The one on the Lower East Coast was a success, there was a large number of entries; the winners were:—

1st prize	Ramdehol, Foulis.
2nd prize	Arjune, Hope.
3rd prize	Mangroo, Hope.
4th prize	Gootoo, Clonbrook.

These competitions were run under the usual rules governing rice competitions.

SEED DISTRIBUTION.

45. Plants, cuttings and seeds of field crops distributed from the Central Station alone during the period under review to farmers and others through the Colony are given in the following summary:—

Padi	...	...	111,055 lb.
Peas and Beans	...	...	25 "
Tobacco ...	...	...	$\frac{1}{2}$ "
Banana suckers	...	...	1,258
Coconuts ...	...	...	60

Fodder Plants.

Demerara Primrose	...	...	500 plants
Guatemala Grass	...	...	300 cuttings
Indigofera endecaphylla	...	...	250,000 cuttings

as well as small quantities of papaw and vegetable seeds.

46. The following plants, seeds and cuttings were distributed from Sub-station Cecilia during the year :

Peas and Beans	...	...	80 lb.
Sweet Potato (tubers)	...	...	48 "
Sweet Potato (cuttings)	...	...	5,875
Eschalot	...	...	46½ "
Onion (seed)	...	...	9 oz.
Onion (bulbs)	...	...	18½ lb.
Tomato (seed)	...	...	6 oz.
Tomato (seedlings)	...	...	168
Tobacco (seed)	...	...	8 oz.
Papaw (seed)	...	...	6 "
Assorted Vegetable seed	...	...	3½ lb.
Sweet Corn	...	...	4 "
Ground Nuts	...	...	125 "
Grape vines	...	...	14

SEED AND PLANT INTRODUCTION.

47. The undermentioned seeds were received from abroad during the year :—

Tobacco—"Gold Dollar"—from South Carolina, U.S.A.
 Tobacco—4 varieties—Imperial College, Trinidad.
 Cabbage—"Louisiana Copenhagen"—Louisiana, U.S.A.
 Collard—"Louisiana Sweet"—Louisiana, U.S.A.
 Sweet Potato—"Black Rock"—Imperial College, Trinidad.
 Tomato—"Bronard's Champion"—Guernsey, Channel Islands.

E. M. PETERKIN,
 Agricultural Superintendent,
 East Demerara.

DEPARTMENT OF AGRICULTURE.

REPORT ON THE WEST DEMERARA DIVISION FOR THE
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REPORT ON THE WEST DEMERARA DIVISION FOR THE YEAR 1937.

STAFF.

A. A. Abraham
A. A. Benn

—Agricultural Superintendent.
—Agricultural Foreman.

GENERAL.

2. The Agricultural Superintendent of West Demerara was temporarily transferred to the Berbice Division from January 26 to May 18, 1937.

3. Weather conditions were unfavourable for the sugar industry during the earlier months of 1937. Although the mean rainfall for January, 1937, was 6 inches 92 parts over that of January, 1936, there was a period of dry weather from February to April which retarded the progress of the spring crop of the sugar estates. In consequence thereof, the recovery of sugar per acre dropped below that of the 1936 crop by approximately one-half ton per acre. In certain areas where there was no means of irrigation the spring crop was stunted and poor. It is recorded, however, at Plantation Uitvlugt that the 1937 cane crop, despite the months of dry weather, was considerably better than 1936 on account of a larger acreage being under Diamond 10 and P.O. J. 2878 varieties.

4. The situation was different, however, with the principal padi crop. With the advent of the midyear rains the season became favourable for the setting of seed and preparation of the padi fields for the cultivation of the autumn padi crop.

5. The mean rainfall for 1937 was 97 inches 10 parts as compared with 102 inches 07 parts for 1936. The 1937 rainfall also, was not as evenly distributed as that of 1936.

6. The activities of the Department of Agriculture in this division during the year under review were varied and took within its scope :—

1. The propagation of pure line seed padi.
2. The organization of padi variety trials.
3. The establishment of pure line private seed farms.
4. The establishment of pure line padi demonstration plots.
5. The establishment of a farm unit.
6. The experimental cultivation of bananas.

7. The agricultural community of this division was imbued with renewed farming interest in the establishment, this year, by the Department of Agriculture of the Toevlugt farm unit at Pln. Toevlugt, West Bank, Demerara. Apart from the primary object of demonstrating the practicability of establishing an homestead on the basis of a family unit, this farm settlement embraces a wider field in relation to the agricultural welfare of the district which aims at the distribution of planting material and the marketing of crops. In respect to the distribution of material for planting purposes, selected maize seed and sweet potato cuttings were distributed during the year.

8. This unit is worked by the employment of farmer-labour and this system proves advantageous by the facilities and opportunities afforded these farmers to improve their farming methods on their own farms or homesteads by applying the agricultural operations based on scientific farming principles in which they are instructed whilst employed on the farm unit.

9. The Agricultural Superintendent attended a Field Day for farmers held at the Sophia Sugar Experimental Station, the Experimental Fields at the Botanic Gardens and at the Botanic Gardens nurseries on September 20, 1937. An appreci-

able number of farmers also, from this division, availed themselves of the opportunity to attend this Field Day which proved of great interest.

10. The "Farm Journal" of the Department of Agriculture was well supported during the year. The overseeing staffs of the sugar estates of the district were enrolled as new subscribers which proves the esteem in which the journal is held and the appreciation of the agricultural suggestions and instructions it contains.

11. The yearly padi competitions were held this year with the usual satisfactory results. These competitions conducted during the autumn padi crop open a wide field whereby the District Officer has a means of maintaining the continuity of the Department's policy of fostering the propagation of pure line seed padi and the reservation of selected pure line seed padi for the planting of the succeeding crop. This policy is proving very beneficial and the time is being looked forward to when padi-growers will all become pure line seed padi cultivators.

12. The event in sugar agriculture in this division was the amalgamation of Pln. Schoon Ord and Pln. Versailles in January, 1937.

CROP CONDITIONS.

Sugar.

13. The general condition of the sugar crop for the year under review was not as good as compared with that of 1936, owing to the dry weather towards the close of 1936, and the drought in the earlier months of 1937. At Pln. Uitvlugt, however, on account of a much larger acreage under Diamond 10 and P.O.J. 2878 varieties the sugar crop was a good deal better than that of the other estates of this division.

14. The area under cane cultivation for 1937 was 15,328 acres, 14,311 acres were reaped as compared with 13,984 acres in 1936.

15. The principal varieties grown during the year were Diamond 10, P.O.J. 2878 and D625, Diamond 10 still being the predominant variety in this division. At Pln. Versailles D625 is being replaced with Diamond 10, P.O.J. 2878 and D602. The variety D602 is reported to be suitable for the pegassy soils of the back lands of the estate.

Rice.

16. Although weather conditions were unfavourable to the sugar industry, the rainfall for the year was seasonable both for the spring crop and autumn crop of this division. During the dry period there was a sufficiency of water supply for irrigation purposes to maintain the cultivation.

17. There was much activity in the purchase of padi by millers in this district during the reaping of the autumn crop for milling for export. In view of the high standard of purity of the seed grown in the district, good quality rice was obtained, and the shipments of rice abroad were favourably commented on. The cultivation of this class of padi has been made possible on the distribution of pure line seed padi grown at the Department's seed farm at Pln. Vreed-en-Hoop, and in an additional measure to the organisation of private seed farms established under the aegis of the Department of Agriculture in the autumn of 1936.

18. A survey of the padi cultivation for the autumn crop was carried out during the month of September and the following approximate results as detailed in the following table were arrived at:—

Area under cultivation. Acres.	Area under Pure Line Padi. Acres.	Padi of approximately 90% purity. Acres.	Padi of approximately 90%—75% purity. Acres.	Padi below 75% Acres.
3,352	3,375	1,094	167	718

19. The total area reaped was 7667 acres with an estimated yield of 134,424 bags (of 140 lb.) as compared with 10,027 acres in 1936, with an estimated yield of 150,405 bags. Although the Demerara Creole was the predominant variety grown, D114 the new variety was extended this year.

Coffee and Cacao.

20. The position of these crops has made no progress during the year. The continued low market price hampered improvements in the coffee fields of the Canals Polder. The good work done in 1936 to maintain a high standard of product was practically lost in 1937, in view of poor prices obtained from the sale of coffee.

Citrus and Ground Provisions.

21. The budded citrus orchard at Pln. Middlesex was well-maintained during the year. The earlier planted plants came into bearing this year. The estimated yield of budded oranges was 2,040 fruit and that of the budded grape fruit was 1,350 fruit.

22. The struggle of profitably cultivating provision crops in the Canals Polder continued during the year owing to inadequate drainage. Improvements, however, were being made in 1937, and are continued in the main drainage system of this area. When these are completed it is anticipated that farmers will turn to put their internal drainage in proper and efficient order.

DISTRICT WORK.

Sugar.

23. The Agricultural Superintendent collaborated with the Sugar Experiment Station in connection with the sugar-cane experiments conducted in this division during 1937. The details of these experiments are given in the report of the Cane Agronomist.

Rice.

24. The organization of pure line padi seed farms was continued during the year. Farmers who undertook the cultivation of these seed nurseries during 1936 made much improvement in their work in 1937. The advisability of roguing volunteer padi was stressed, also the benefit of demarcating the seed farms from the general cultivation in order to keep the cultivation of these farms pure was impressed upon the growers with a view to obtaining pure seed for subsequent cultivation. 14,919 lb. of D114 and 11,620 lb. of Demerara Creole pure line seed padi grown at the Department's seed farm, Plantation Vreed-en-Hoop, were distributed in connection with the cultivation of the autumn padi crop of this division.

25. The cultivation of the Department's seed farm was continued at Plantation Vreed-en-Hoop. The site consisted of eleven acres. Ten acres for pure line seed padi, and one acre was under a variety trial. This year, five acres of D114, four acres of Demerara Creole and one acre of Kalyaman variety seed padi were grown for seed distribution during 1938. 100 bags of D114, 93 bags of Demerara Creole and 15½ bags of Kalyaman were harvested.

26. Of the eight varieties which consisted the variety trial this year under review, D99, D114, Demerara Creole and D110 were significantly better and gave the highest yields.

Citrus.

27. Work in connection with citrus orchards in this division during 1937 consisted in judicious pruning of trees and in the improvement of drainage conditions and in respect to combating insect pests. At Pln. Middlesex—Canal No. 2—ploughing operations with a view to stimulating growth were also carried out.

Land Settlement.

28. (1) *Toerlugt Farm Unit*.—Operations to establish this Farm Unit began on February 6, 1937.

29. The establishment of the Farm Unit is based on a definite working plan with the object of devising the best systems of planting crops under proper cultural methods. The programme includes the rotation of crops, the improvement of the fertility of land by fallow system, and the intensive cultivation of vegetable garden produce.

30. The Farm Unit is divided by a main drainage trench into two sections: Block "A" and Block "B" and is under a well-laid out system of the internal drainage with an outlet koker which provides for efficient drainage throughout the heavy rainy seasons.

31. Block "A" comprises four acres for the erection of the homestead dwelling, pasture land, the cultivation of fodder grasses, and the rearing of pigs and poultry and other live stock.

32. Block "B" has an acreage of six acres and is designed for the cultivation of permanent crops of coconuts and citrus fruits.

33. In Block "B" four acres were cleared in February, and burnt and prepared for cultivation. This section is divided into twelve plots. In May, seven plots were planted respectively, with sweet potatoes, plantains, bananas, tannias, cassava, eddoes, yams and maize. In August the remaining two acres were cleared, and in November sown with maize. In December, the planting of budded citrus plants of Marsh Seedless grape fruit and oranges was begun. A selection of seed-coconut was sown in a well-prepared nursery in the remaining plot of this section. Minor crops of pumpkins and blackeye peas were also grown during 1937.

34. The maize crop sown in May, 1937, was reaped in August, and the sweet potato crop planted in June was harvested in November the same year.

35. The sale of the produce of these crops was placed to the credit of the farm unit. In December the vegetable plot was being brought under cultivation.

36. Block "A" will be brought under cultivation at the beginning of 1938.

(2) *Banana Experiments*: Plantation Middlesex, Canal No. 2.

37. Operations on the five-acre plot selected for these experiments were begun on February 1, 1937. The site was cleared and laid out under an efficient drainage system. On April 9 the area was planted with Gros Michel variety banana. Prior to planting, the stems were specially and carefully selected and inspected by the Plant Pathologist.

38. Although this banana experimental cultivation made favourable progress during the early stages of growth, nevertheless, several plants developed "Panama Disease." The incidence of this disease, however, was sporadical in the cultivation during the year and not epidemical.

39. On August 9 the cultivation was seriously affected by an outbreak of leaf disease, identified as *Cercospora* leaf spot which swept through the entire cultivation and affected every plant.

40. Steps for combating and controlling these diseases were taken by the Plant Pathologist.

AGRICULTURAL EDUCATION.

School Gardens.

41. The school gardens in this division made favourable progress during the year. At the end of 1937 there were five registered gardens in receipt of grants from the Agricultural Department.

Competitions.

42. *Padi Competitions.*—Interest was maintained during the year in these competitions. As in 1936, these competitions were confined to private seed farms established under the aegis of the Department of Agriculture. The organisation of these farms possesses great worth in the production of pure line seed, and bears much influence on the agricultural value of the instructions given throughout the cultivation of these nurseries. The padi-growers have realised that the yearly production of pure line padi seed propagated on these seed farms is the key to the production of a high standard of rice.

43. In the course of these competitions the seed-farms were judged in accordance with the following schedule :—

<i>Farm.</i> —				Points.
(1)	Preparation of the nursery	...	...	40
(2)	Attention given to roguing			
	Purity of padi	...	...	40
(3)	Yield	...	...	20
<i>Seed.</i> —				
(1)	Quantity of seed reserved from the pure line seed farm	...	...	50
(2)	Quality of seed stored	...	...	20
(3)	Method of storage	...	...	15
(4)	Immunity from weevils and padi moth	...	...	15

44. The attached table gives the order of merit of the successful competitors.

TABLE.

Name.	Address.	Farm.			Seed.				Tot.l.	Awards
		Prepara- tion of the Nursery.	Attention given to roguing. Purity of padi.	Yield.	Quantity of seed reserved.	Quantity of seed stored.	Method of storage.	Immunity from Weevils and Padi Moth-		
		Points.	Points.	Points.	Points.	Points.	Points.	Points.		
Choey	... Crane ...	40	40	20	50	20	15	15	200	\$ 15 00
Haneraj	... La Jalousie ...	40	40	20	45	20	15	15	195	10 00
R. G. Jossimy.	Fellowship ...	40	40	20	40	20	15	15	190	5 00
Sanicharry	.. Tuschen ...	40	40	20	38	20	15	15	188	3 00

CO-OPERATIVE CREDIT BANKS.

45. The Agricultural Superintendent was appointed Chairman of the Bloomfield-Salton, Rose Hall, Eversham and Skeldon Co-operative Credit Banks while resident in New Amsterdam. On resuming duties on the West Demerara the Agricultural Superintendent was re-appointed Chairman of the Co-operative Credit Banks of that division.

MISCELLANEOUS.

46. The Agricultural Superintendent records his appreciation of the co-operation rendered by the Farming Community and the Sugar Estates' Management in the progress of the agricultural welfare of the district during 1937.

A. A. ABRAHAM,
Agricultural Superintendent,
West Demerara.

March 31, 1933.

DEPARTMENT OF AGRICULTURE.

REPORT ON THE ESSEQUIBO DIVISION FOR THE YEAR 1937.

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REPORT ON THE ESSEQUIBO DIVISION FOR THE YEAR 1937.

STAFF.

E. G. Benson, B.Sc., C.D.A., A.I.C.T.A.	—Agricultural Superintendent.
E. M. Morgan	—Assistant Agricultural Superintendent.
A. W. Sears	—Agricultural Instructor.

1. The Assistant Agricultural Superintendent was transferred to the West Coast, Demerara, in January. He returned to the Essequibo Coast in May.

GENERAL.

2. Wakenaam, Leguan and the other Essequibo Islands were under the control of the Agricultural Superintendent, West Demerara from December, 1936, to June, 1937. From that time, they have been placed under the supervision of the Agricultural Superintendent, Essequibo.

3. The work of the division has been as follows :—

- (a) Pure line padi distribution; agricultural education; the collection of census returns and district routine.
- (b) The production of pure line padi, and the conducting of experiments at Henrietta, Wakenaam and Leguan Stations.
- (c) The supervision of a demonstration garden at Anna Regina.
- (d) The sampling of rice and padi for export purposes.
- (e) The supervision of five school gardens.
- (f) The Chairmanship of four Co-operative Credit Banks.
- (g) The administration of Bush Lot Settlement.
- (h) The supervision of the Government Estates of Anna Regina *cum annexis*, which were leased.

CROP CONDITIONS.

RICE.

4. The Essequibo Coast.—Padi lands on the Essequibo Coast are suffering at present from continuous cropping. Those areas which have consistently carried a crop of padi twice each year are becoming deeply waterlogged. Consequently, much difficulty is experienced in ploughing with oxen, since the animals tend to sink in the heavy clays. In many cases farmers have resorted to the more difficult operation of hand hoeing.

5. Moreover, where two crops a year are grown, late harvesting of the autumn crop often leaves little time for the establishment of a spring crop, and there is a tendency for reduced yields to be obtained when late planting occurs.

6. Although there is every indication that continually cropped lands, in the mid section of the Essequibo Coast especially, require resting, this difficulty cannot be overcome easily in the absence of other staple industries besides rice.

7. Migration of padi farmers to sugar areas still continues, and this is tending to create labour shortage and decreased cultivation.

8. Low prices and poor economic conditions have had a depressing effect upon the purity and quality of the padi grown on the Coast, since producers have relaxed their efforts in these directions. Bull mashing, though not universal, is still practised to the detriment of the samples of padi and rice produced when the operation is not carefully carried out.

9. At present the Experiment Station at Henrietta is endeavouring to select a suitable type of long grained padi that is easily threshed. Meanwhile, the extension of Blue Stick and the higher yielding medium length D114 is in progress.

10. *Wakenaam and Leguan*.—There has been a considerable increase of padi cultivation in Wakenaam and in Leguan. Fresh lands have been taken into cultivation and previously cultivated fallow lands have been cropped once more. With ground provisions, market gardens and cattle, the cultivation of padi is a more economical proposition to the farmers of Wakenaam and Leguan than it is to the farmers of the Coast.

11. The variety D114 was distributed into Wakenaam and Leguan for the first time this year. The yields obtained were good and the farmers were impressed, but some difficulty has been experienced in its milling.

12. The acreage under padi was estimated as follows in the Autumn :—

			Acres
Leguan	...	...	2,378
Wakenaam	...	...	3,014
Coast	...	...	6,118

Yields in the spring crop were around 10-15 bags (140 lb.) per acre. In the autumn crop they ranged from 16-20 bags per acre on the Coast and averaged 24 bags per acre in Wakenaam and Leguan.

13. On the Essequibo Coast the price of padi rose somewhat at the end of the year, farmers receiving not less than \$1.20 and on the average \$1.26 per bag of 155 lbs. In Wakenaam the prices ranged from \$1.16-\$1.20, and in Leguan from \$1.08-\$1.12 per bag of 140 lb net. The introduction of padi buyers from the Essequibo Coast because of the lateness of the Autumn crop there, induced keen competition in the buying of padi in Wakenaam.

14. There have been no serious outbreaks of pests and diseases to report in the padi cultivations throughout the district.

Coconuts.

15. A somewhat similar condition to last year still exists on the Essequibo Coast and Pomeroon. Cultivations are not being properly maintained. Weeding and more methodical supplying is necessary. Wilt is as usual prevalent.

16. In Wakenaam there has been a slight increase in area and more interest has been taken in the cultivations.

17. *The Coconut Oil Industry*.—Chiefly in Wakenaam, continues to progress satisfactorily in conjunction with the keeping of pigs.

18. Both the prices of coconuts and copra fluctuated throughout the year.

Copra	...	... 2.7— 3.4c. per lb.
Nuts	...	...\$6 —\$7 per 1,000.

19. *Ground Provisions, Coffee, Fruit, and Maize*.—In the Pomeroon area where coffee, ground provisions and fruit are chiefly grown the general economic condition is still poor. Because the price of coffee continues to be low, grant holders are making little effort to keep alive the existing cultivations, which for the most part remain in an overgrown state with the crops unpicked. With the failure of coffee in the Pomeroon more attention is being paid to citrus and coconuts, while rising prices of ground provisions in the middle of the year resulted in more interest being taken in this cultivation by farmers.

20. In Wakenaam and the smaller Essequibo Islands ground provision areas were adequately maintained, and farmers have profited by remunerative prices. The vegetable gardens of Leguan are also on the increase, and more careful cultivation is being practised.

21. Interest in the cultivation of maize has started on Essequibo Coast where one proprietor has induced his farmers to commence a regular cultivation on virgin land aback of his estate.

ANIMAL HUSBANDRY.

22. The Pedigree Guernsey bull at Leguan continues to serve a useful purpose although full advantage is not being taken of his services, which numbered 66 for the year.

23. A report of cattle disease from the Essequibo Coast necessitated a visit of the Government Veterinary Surgeon to the Huis't Dieren and Middlesex areas. Haemorrhagic Septicaemia or Anthrax was suspected, but as there was no re-occurrence of the outbreak, the disease was not confirmed.

DISTRICT WORK.

Rice.

24. *Padi Seed Distribution*.—Seed padi distribution on the Essequibo Coast, took place by cash sales at \$1.20 per bag of 140 lb. nett.

In Wakenaam and Leguan distribution was done on a system of exchange, a bag of pure seed being given to the farmer for the equivalent value of mixed padi.

25. The following quantities of pure line padi were distributed during 1937 :—

(a) On the Essequibo Coast.

			lb.
Blue Stick	...	...	13,982
D 114	...	...	11,276
Kalyman	...	...	9,520
Demerara Creole...	...	...	4,647

(b) In Wakenaam.

D 114	...	...	12,880
-------	-----	-----	--------

(c) In Leguan.

D 114	...	...	14,280
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Total			66,585
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26. *Rice Grading and Padi Sampling*.—In accordance with the usual practice, consignments of rice were examined and sampled on behalf of the Rice Grading Inspector to facilitate steamer loading from punts in Georgetown. An indication of grade was given to shippers on the Essequibo Coast by the Agricultural Superintendent. The quantities examined and classified were as follows :—

Super	...	...	16,536 bags
Extra No. 1	...	...	4,472 „
No. 1	...	...	1,949 „
Super Broken	...	...	73 „
Total			23,030 „

27. A total of 2,800 bags of padi destined for the Canadian market were sampled on behalf of the Director of Agriculture. Punts, lorries and chutes involved in the transportation and export of this padi from the Essequibo Coast were disinfected with formalin.

AGRICULTURAL EDUCATION.

School Gardens.

28. There are five aided school gardens in the District as follows :—

Essequibo Coast—Anna Regina Government School.

Essequibo Coast—Huis t'Dieren Church of Scotland.

Queenstown St. Bartholomew's Church of England.

Wakenaam—Sans Souci Methodist, Zeelandia Church of England.

All of these gardens are under the agricultural bias scheme and their practical work is under the supervision of the District Agricultural Officers.

The progress of the gardens at Anna Regina and Sans Souci is satisfactory.

The gardens at Huis't Dieren and Zeelandia are handicapped by the lack of older children in the agricultural classes.

The garden at Queenstown has just been started.

Competitions.

29. Five competitions were held in the District—three for padi farmers and two for farmers in the Pomeroon.

The padi competitions were held on the Essequibo Coast, Wakenaam and Leguan. Points were given for cultivation, roguing and subsequent care of the reaped padi for seed purposes. The awards were as follows:—

(a) Padi Competition, Essequibo Coast.

1st Prize	\$ 15 00	Hari Sahai	Good Intent
2nd „	10 00	Sookram	Land of Plenty.
3rd „	5 00	Lacknath	Riverstown.
4th „	3 00	David Sookoo	Affiance.

(b) Padi Competition, Wakenaam Island.

1st Prize	\$ 15 00	Sijat Khan	Pln. Belleplane.
2nd „	10 00	Surjat	„ Arthurville.
3rd „	5 00	G. Nanbodh	„ Meerzorg.
4th „	3 00	S. Harry Paul	„ Belleplane.

(c) Padi Competition, Leguan Island.

1st Prize	\$ 15 00	Phakoo	Pln. Success.
2nd „	10 00	G. Freeman	Kingston.
3rd „	5 00	Ganesh	Pln. Belleplane.
4th „	3 00	Roopram	Phoenix.

The Pomeroon competitions were designed to improve the quality of coffee and sweet potatoes by awarding prizes for:—

(a) The best exhibit of coffee (25 lb.)

(b) The best bag of 140 lb. graded sweet potatoes.

The awards were as follows:—

Coffee Competition.

1st Prize	\$ 8 00	Mary Scott	Jacklow.
2nd „	4 00	Clara Jones	Better Experience.
3rd „	2 00	John Allen	Dorris Dale.

Sweet Potato Competition.

1st Prize	8 00	Phoenix Benn	Old Burnt Bush.
2nd „	4 00	Hundar	St. Joseph.
3rd „	2 00	Dindial	} St. Joseph.
		Khanuai	

Demonstration Garden & Apiary.

30. An area of about $\frac{1}{2}$ an acre behind the Superintendent's house at Anna Regina was taken into cultivation at the beginning of 1937. Apart from its experimental function, it is designed to serve as a demonstration to vegetable growers and to supply them with planting material in the nature of seeds and seedlings.

The progress of the Apiary attached to the Demonstration garden has been hindered somewhat by excessive swarming, in spite of the fact that the bees have been given ample room. There are four hives at present.

Co-operative Credit.

31. *Credit Banks*.—There were four co-operative credit banks in the district—two on the Coast, one in Wakenaam and one in Leguan.

Because of poor economic conditions the volume of business in the Coastal banks has decreased somewhat this year.

The Wakenaam and Leguan Banks, which have confined their attention for some time past to the collection of outstanding debts were finally put into liquidation during December.

32. *Pomeroon Flood Relief Loans*.—These loans amounting to \$4,000 were granted as a flood relief measure to Pomeroon farmers during 1934.

In 1936 a concession was granted to borrowers whereby it was agreed that amounts paid as interest should be treated as capital payments and deducted from the amount lent, provided that all interest was paid by the end of 1937 when 20 per cent. of the capital fell due; thereafter, repayments of capital only without interest would be required, provided that all instalments of capital were regularly met. Few borrowers have taken advantage of this concession.

33. *Emergency Agricultural Loans*.—During 1933 a loan of \$2,710.00 was given by Government to assist padi cultivators. At the end of 1937 a total of \$341.86 capital and \$11.90 interest remains to be collected.

ANNA REGINA ESTATES.

34. These consist of the Estates Anna Regina, Henrietta, Richmond and La Belle Alliance which were leased to Mr. Ramparikhian Rai of L'Union for a renewed period of one year to December 31, 1937.

Periodic inspections of the estates were made. The general upkeep by the lessee was poor. Much trouble was experienced by silting of the Anna Regina Sea Koker from March to June.

The estates, with the exclusion of La Belle Alliance pasture, will be leased in 1938 to a syndicate consisting of the Honourable S. H. Seymour and Mr. Sase Narayan.

35. The old Anna Regina factory building, two boilers, a pan and concrete foundations were sold to Mr. S. H. Seymour, in 1936. Dismantling continued throughout 1937. From the time that work started in 1936 to the end of 1937 a total of \$981.10 has been collected from the sale. The contract for removal has now been terminated.

BUSH LOT LAND SETTLEMENT.

36. The following comparative table summarises the population, cultivation and indebtedness of settlers at the end of 1936 and 1937.

Period.	Popula- tion.	Area Farmed (acres.)	House Rent.	Land Rent.	Sanitation Rent.	Interest.	Advances.	Totals.
December, 1936	...	214	\$ 71 27	\$ 312 06	\$ 11 25	\$ 32 69	\$ 1,572 62	\$ 2,049 89
December, 1937	...	176	207 88	544 10	23 25	133 96	1,028 77	1,937 96

37. Of the total sum under advances the sum of \$304.84 represents money supplied to settlers for the purchase of 20 ploughing steers which are secured to Government by promissory notes and branding. A total advance of \$559.71 was made to settlers during 1937.

38. Two crops of padi were grown during the year. The spring crop was hindered by late planting and a considerably reduced yield was obtained. The areas cultivated were as follows :—

	Volunteer.	Planted.
Spring Crop—1937	31 $\frac{3}{4}$ acres	31 acres
Autumn Crop—1937	...	183 $\frac{1}{4}$ acres

39. In accordance with the usual custom the settlers' padi was put up for tender and sold to the highest bidder.

	Amount. Received by settler. (per bag).	Bags sold.
Spring Crop—1937	\$ 1 16	195
Autumn Crop—1937	1 26	2,358

All sales of padi were effected through the Superintendent's Office at Anna Regina where deductions for settlers' debts to Government were made at the time of sale. A total of \$1,823.88 was collected and credited to the accounts of settlers.

40. Maintenance works of trench cleaning and repairs to houses, bridges, sluices, etc., were carried out in the usual manner. Extensive repairs to Bush Lot houses are now indicated.

41. During the year an area of about 40 acres for cattle behind the rice fields of Bush Lot was fenced by the settlers, Government having supplied the necessary wire and posts. A fence was erected between the settlement and the eastern rice fields to prevent the straying of cattle there. The kindergarden school in Bush Lot Settlement was also fenced and a small garden started.

42. Settlers have been encouraged to plant vegetable gardens behind their houses. At present there are 15 gardens on the Settlement.

EXPERIMENT STATIONS..

43. There are three experiment Stations in the District at Henrietta, Wakenaam and Leguan. These are devoted to the growing of padi for seed distribution and experimentation.

Henrietta Station.

44. During the spring crop this station was planted as follows :—

	Area (Acres.)	Yield lb.	Yield per acre (Bags 140 lb.)
Kalyaman ...	5	9,077	13'
Demerara Creole ...	3 $\frac{1}{2}$	7,156	14'6
Progeny Rows ...	$\frac{1}{2}$	...	...
Fallow ...	1	...	...
Total ...	10		

The Progeny rows consisted of :—

- (a) Single head selections of Blue Stick. Padi from the four highest yielding plots were reserved for a strain trial during the autumn crop.
- (b) Four selections of local long grained paddies. These were rogued and subsequently placed in a preliminary long grained trial during the autumn crop.

45. During the autumn crop, Henrietta Station was planted as follows :—

	Area (acres).	Yield (lb.)	Yield per acre (bags 140 lb.)
D 114 ...	2	7,773	27.76
Demerara Creole ...	2.2	7,560	24.54
Kalyaman ...	1.87	4,802	18.35
Progeny Rows Selections and Variety Trials ...	3.93	...	...
Total ...	10	...	...

46. Progeny Rows—autumn crop 1937.

The following progeny rows were established from single head selections made during the spring crop :—

- 15 Plots of Blue Stick
- 15 Plots of local long grained paddies.

47. *Indian Padi*.—A sample of Indian padi which was mixed is being tested out as follows :

The sample was graded by a padi measuring machine in accordance with the lengths of unhusked grains. The measured grains were sown in rows, so that there was a difference in length of 0.1 mm. between the grains used in each row through the range 9.8—11.1 mms.

Observations on the individual plants were carried out during the autumn crop ; and single head selections have been made for elaboration into progeny rows and variety trials during 1938.

48. An extensive programme of yield trials was laid down at Henrietta during the autumn crop. The description and results of these experiments are as follows :—

(a) Age of Transplanting :—(5 x 5 Latin Square).

This is a repetition of identical experiments carried out at Henrietta in 1935 and 1936. Blue Stick seedlings were transplanted at 3,4,5,6 and double transplanted at 4 and 8 weeks old.

Treatment.		Padi per acre lb.
3 weeks	...	4,072
4 weeks	...	4,008
5 weeks	...	3,904
Double transplanting	...	3,800
6 weeks	...	3,704
Sig. Diff. P = .05		188

There was no significant difference between seedlings transplanted at 3,4 and 5 weeks old. Double transplanted and 6 weeks seedlings were inferior to seedlings transplanted at 3 and 4 weeks old.

Similar results were obtained in the 1935 trial but the results of the 1936 trial are conflicting.

(b) Number of seedlings per hole :—(5 x 5 Latin Square) A similar experiment was carried out in 1936. The treatments were 1,2,3,5 and 7 seedlings per hole at the time of transplanting.

Treatments.		Padi per acre lb.
7	...	2,800
5	...	2,696
3	...	2,460
2	...	2,436
1	...	2,388
Sig. Diff. P = .05		194

7 and 5 seedlings per hole with no significant difference between them are better than 3,2 and 1 seedlings per hole. The results differ from those obtained in 1936 when fewer seedlings per hole gave better yields.

(c) Blue Stick Strain Trial (5 x 5 Latin Square).

Strain.		Padi per acre lb.
Ordinary Blue Stick	...	2,808
Strain 4	...	2,760
Strain 2	...	2,692
Strain 1	...	2,612
Strain 3	...	2,552
Sig. Diff. P = .05		...

There is no significant difference between ordinary Blue Stick and the selected strains. A similar trial occurred in 1936 with the same results.

(d) Long Grain Trial (5 x 5 Latin Square).

Four local long grain selections of padis were tested against ordinary Blue Stick in a preliminary trial.

Selection.		Padi per acre lb.
Ordinary Blue Stick	...	4,020
Seymour's Padi...	...	3,768
Jaisingh's „	...	3,560
Ramjess „	...	3,560
Sue's	...	3,520
Sig. Diff. P = .05		...

There is no significant difference between any of the padies tested.

(e) Variety Trial No. 1 (8 x 8 Latin Square).—Containing the varieties D 114, D 99, D 109, No. 79, D 91, Blue Stick, Demerara Creole and Kalyaman.

Variety.		Padi Per acre lb.
D 114	...	3,900
D 99	...	3,858
D 109	...	3,680
No. 79	...	3,530
D 91	...	3,413
Blue Stick	...	3,345
Demerara Creole	...	3,320
Kalyaman	...	3,260
Sig. Diff. P = .05		183

D 114 is superior to all other varieties except D 99 which is superior to the remaining varieties with the exception of D 109.

(f) Variety Trial No. 2 (8 x 8 Latin square).—Containing the varieties D 114, D 110, D 109, D 89, No. 79, Blue Stick, Demerara Creole and D 88.

Variety.			Padi Per Acre lb.
D 114	...	...	3,648
D 110	...	...	3,505
D 109	...	...	3,415
D 89	...	...	3,320
No. 79	...	...	3,080
Blue Stick	...	...	3,035
Demerara Creole	...	...	2,970
D 88	...	...	2,895
Sig. Diff. P = .05			179

D 114 is superior to all other varieties except D 110 which is superior to the remaining varieties with the exception of D 109.

49. *One crop versus two crops.*—In 1936 two acres were selected at Henrietta to test the effect of growing one and two annual crops of padi upon the same land over a number of years. Crops of D 114 were established on these areas during the autumn and the yields then obtained may be compared as follows:—

	lb.
From acre bearing one crop per annum	... 4,137
From acre bearing two crops per annum	... 3,636
Difference	... 501

Wakenaam Station.

50. During the autumn crop Demerara Creole and D 114 padi were grown for seed purposes on this station.

	Acres.	Yield (lb.)	Yield per acre (bags 140 lb.)
D 114	3	12,600	30
Demerara Creole	1	3,900	28

In addition a Latin Square (8 x 8) containing the varieties D 114, D 99, D 110, No. 79, Kalyaman, D 109, D 91 and Demerara Creole was established.

Varieties			Padi per acre lb.
D 114	...	...	4,165
D 99	...	...	4,093
D 110	...	...	4,040
No. 79	...	...	4,000
Kalyaman	...	...	3,893
D 109	...	...	3,708
D 91	...	...	3,460
Demerara Creole	...	...	3,665
Sig. Diff. P = .05			238

D 114, D 99, D 110 and No. 79 with no significant difference between them are better than all other varieties with the exception of Kalyaman which is surpassed only by D 114.

Leguan Station.

51. Like the Wakenaam Station crops of Demerara Creole and D 114 padi were grown here for seed purposes during the Autumn crop.

	Area.	Yield (lb.)	Yield per acre (Bags 140 lb.)
D 114 ...	3	13,020	31
Demerara Creole ...	1	4,200	30

Latin Square (8 x 8).—Containing the varieties D 110, Kalyaman, No. 79, D 114, D 91, D 99, Demerara Creole and D 109 was also established.

Varieties.		Yield per acre lb.
D 110 ...	...	4,635
Kalyaman ...	...	4,535
No. 79 ...	...	4,462
D 114 ...	...	4,375
D 91 ...	...	4,140
D 99 ...	...	4,135
Demerara Creole ...	...	4,108
D 109 ...	...	3,848

Sig. Diff. $P = .05$

291

No significant difference exists between D 110, Kalyaman, No. 79, and D 114. The first three varieties are superior to the last four.

52. A Field Day was held at Henrietta on October 8, when there was an attendance of proprietors and others interested in the padi work there.

MISCELLANEOUS.

53. *Visitors.*—The Director of Agriculture visited the Station in June. The Deputy Director of Agriculture and other Departmental Officers visited the District at various times during the year.

54. *Reports of Correspondence.*—The following reports were submitted:—monthly reports; quarterly reports on the Emergency and Flood Relief Loans; reports on the indebtedness of settlers and collections; reports of the stock of rice and padi in the District. 420 items of correspondence were received and 550 despatched.

55. *Acknowledgement.*—It is a pleasure to record the loyalty and co-operation of the staff.

E. G. BENSON,
Agricultural Superintendent,
Essequibo.

March 31, 1938.

DEPARTMENT OF AGRICULTURE.

REPORT ON THE NORTH WEST DISTRICT FOR THE YEAR 1937.

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REPORT ON THE NORTH WEST DISTRICT FOR YEAR 1937.

STAFF.

L. E. McKinnon—Agricultural Instructor.

GENERAL.

During the first quarter of the year the weather was suitable for empoldering new areas and for planting maize. The heavy rains started in May, and continued on to December. The total rainfall for the year was 118.63 inches. The permanent crops growing on the hill lands benefitted by the rainfall during the year. The farmers have again suffered from the low prices obtained for their produce. The beehives owned by the Hosororo Convent made very good progress during the year, excellent honey being obtained. The demand for honey is increasing in the district.

2. The Agricultural Instructor travelled overland through the Pomeroon to Georgetown and visited Head Office on June 3 to discuss matters concerning his district with members of the Staff. Visits were paid to all the farms including those in the outlying districts. Agricultural instructions were given on drainage, grading of produce and methods for improving the quality of coffee for the market.

3. Labour conditions were normal throughout the year and no difficulty was experienced for labour to gather the corn and lime crops.

CROP CONDITIONS.

Coffee.

4. The failure of the coffee market has again affected this crop and areas devoted to it are being gradually reduced. The acreage under coffee is 1,589½ acres, a decrease of 25½ acres. There are many old farms in a semi-abandoned state, and should no improvements be made on these farms the older cultivations will become unremunerative and will eventually go out of existence.

5. All the farmers have not yet acted as advised and reduced their acreages to a size that enables them to gather all their crop, and so reduce the cost of upkeep and increase their yield per acre. The average yield at present is 300 to 400 pounds per acre, but with a reduced area 800 to 900 pounds can be obtained. Better quality of cured coffee was prepared this year for the market.

Coconuts.

6. This cultivation is on the increase in the Moruca district. Some of the older trees on one farm are dying out, but this is due to neglected drainage. The cultivation in the Mora passage is making good progress but most of the older trees in the Barima district have died out. The acreage under this crop has increased by 11½ acres since the previous year. There is a ready market in the Arakaka gold fields for all the nuts in this district, not including Moruca. This outlying district's produce is shipped through the Pomeroon District.

Citrus.

7. The area under this crop was well maintained during the year. The budded plants supplied to the farmers with a few exceptions have made very good progress. A small crop was reaped and the fruits were shipped to the Georgetown market. The plants at the Maridowa estate are promising and this cultivation was well cared for during the year. The Wanaima cultivation was well maintained and a good crop was obtained. The cultivation at Arukumai made but little progress during the year, few efforts being made by the owner to improve his plants.

8. There is always a glut of fruit in the market during the months of November, December and January.

Limes.

9. The lime cultivations at Mabaruma and Wanaima continue to make very good progress. An abandoned area of twenty acres of budded limes in the Aruka was cleared and the trees attended to.

10. The output of raw lime juice was 28,000 gallons and that of oil of limes 206 gallons. There is an all-round increase of this product. The proprietor of the Mabaruma lime factory continues to purchase all the limes in the district. A trial shipment of 12 lugs of green limes was sent from this district through the Department to Canada. The prices, after all charges were met, were not remunerative.

Cacao.

11. This cultivation continues to make satisfactory progress, and farmers with available hill lands have made further clearances for planting next year. The small areas on the pegasse soils are making fair progress. The acreage in cacao is $161\frac{1}{2}$ acres, an increase of $2\frac{3}{4}$ acres since last year.

Ginger.

12. The area under this crop was well maintained during the year and farmers were satisfied with the prices paid by the agents for green ginger. The Canton and Jamaica Ginger which were on trial at Hosororo have been distributed to farmers for trial on pegasse soil. They have proved very satisfactory.

Ground Provisions.

13. Farmers have again cleared new areas during the earlier part of the year for planting. The prices for ground provisions, though somewhat better than the previous year, were not very remunerative. Unfortunately all the farmers have not yet adopted the advice given on the grading of their produce for the market.

14. The following table shows the quantity of produce shipped to the Georgetown markets during the year. The Moruca district is not included, that district's produce being shipped through the Pomeroon river.

TABLE SHOWING QUANTITY OF PRODUCE SHIPPED TO GEORGETOWN, 1937.

Date.	Coffee bags.	Corn bags (180 lb.)	Tannias bags (140 lb.)	Yam: bags (140 lb.)	Eddoes bags (140 lb.)	Sweet Potatoes bags (140 lb.)	Cocoa bags,
January	111	254	355	156	2	2	$2\frac{1}{2}$
February	248	$162\frac{1}{2}$	251	105	1	7	$\frac{1}{2}$
March	332	155	645	226	4	19	$\frac{3}{4}$
April	133	82	336	117	21	43	5
May	152	145	332	84	1	35	$4\frac{1}{2}$
June	118	87	232	...	...	...	$4\frac{1}{2}$
July	$115\frac{1}{2}$	360	99	...	...	...	$1\frac{1}{2}$
August	108	447	89	7	...	5	3
September	$113\frac{1}{2}$	573	125	4	12	4	$2\frac{1}{2}$
October	$41\frac{1}{2}$	529	120	14	15	12	3
November	$59\frac{1}{2}$	$377\frac{1}{2}$	268	29	16	$19\frac{1}{2}$	5
December	$175\frac{1}{2}$	190	118	23	6	13	3
	* 1,707 $\frac{1}{2}$	3,362	2,970	765	78	159 $\frac{1}{2}$	37 $\frac{1}{2}$

*1,707 $\frac{1}{2}$ bags = 404,265 lb. cured coffee.

HOSORORO EXPERIMENT STATION.

General.

15. The station was satisfactorily maintained during the year. The Citrus orchard continues to be of interest to farmers and other visitors.

16. The Deputy Director visited the Station on May 27, and inspected the entire cultivation. Other visitors to the Station during the year were Messrs. E. L. Dolphin, Assistant Inspector of School (actg.), P. A. Cummings, (Commissioner's Clerk, Mabaruma), S. Johnson of the Audit Department and a number of farmers in the District.

Citrus.

17. The area under budded citrus was well maintained. The grapefruit and orange plants with a few exceptions continued to make good progress and a very good crop was obtained. 217 grapefruit and 67 orange plants fruited during the year. The fruit was of good quality. A further trial shipment of grapefruit was sent to England during the year. The bulk of the fruit picked was sent to the Georgetown market.

18. *Budded and seedling limes*.—The experimental area of $2\frac{1}{2}$ acres budded and $2\frac{1}{2}$ acres seedling limes continues to make satisfactory progress. Regular weeding was carried out during the year. The crop was a good one, the yields obtained amounting to 400 barrels. The 24 smooth skinned St. Lucia lime plants and the one plant hybrid Dominica lime have made good progress and all the plants have produced a small crop during the year. The Sicily, Ponderosa and hybrid lemon plants have all made good progress during the year.

Other Fruits.

19. The area under budded and grafted pears was well maintained. The yields from most of the trees was satisfactory. The following varieties; viz., Rudder, Pollock, St. Clair and St. Anne have produced fruits of very good quality and arrangements are being made to raise plants for distribution.

Miscellaneous.

20. *Fish Poison Plants*.—No cultural work was carried out during the year as the plants have all covered the ground and need no attention. Samples of roots and stems were sent during the year to the Botanist.

21. *Black Pepper (Piper nigrum)*.—The thirty plants growing on the new site have made good progress; one plant fruited during the year. This area will be extended during the next year.

22. *Chaulmoogra oil (Hydnocarpus anthelminta)*.—Only one plant has made good progress, the other two older ones being rather poor.

23. *Historical Cacao (from Berbice)*.—These plants continue to make satisfactory progress. The pods obtained from these plants have been used for seed distribution.

24. *Tung Oil (Aleurites Montana)*.—These plants have made good progress during the year.

25. *Oil Palms*.—The majority of these plants have made satisfactory growth; some of them are fruiting.

26. *Citronella*.—The citronella grass continues to make good growth. An apparatus is being erected to carry out distilling experiments.

27. *Cherimoya*.—The plants have failed to make any further progress in the new site and are apparently not suited to the locality.

28. *Panama Hat Palms*.—The palms growing at the foot of the hill continue to make good progress.

29. *Castor Plants*.—An area of half an acre was planted out on the hill alongside the citrus orchard but the plants failed to grow.

30. *Ginger Lily*.—On June 26 half an acre was planted from rhizomes collected about the district; the plants have made very good progress.

31. *British Honduras Mahogany*.—These plants have made very good progress during the year.

WAUNA SUB-STATION.

General.

32. The cultivation was maintained by the watchman. No extra expenditure was incurred in weeding. The oil palms continue to make good progress unattended.

Citrus.

33. The grapefruit and orange plants have made some improvement during the year. The Parson Brown variety is the most promising. 7 grapefruit and 11 orange plants fruited during the year.

Haiari.

34. The Black and White Haiari in the open continue to make rapid growth. The plants have covered the entire ground and are spreading over each other. No more flowers were found from any of the varieties this year.

35. Samples of roots and stems were forwarded from this station to the Botanist.

Limes.

36. The Budded plants continue to make progress and a small crop was obtained from some of the plants during the year.

37. *Coconuts*.—(seeds from Essequibo). These plants are making very slow growth.

38. *St. Lucia Dwarf*.—One plant flowered during the year, but did not keep on its fruits. It has now produced a further set of flowers but it is yet too early to state if the fruits will hold.

39. *Oil Palms*.—The plants have made satisfactory progress during the year. No cultural work was carried out in this area.

PESTS AND DISEASES.

40. *Sclerotium coffeicolum Stahel*.—This disease made its appearance during the month of November and December on all the coffee farms in the district. Farmers were unable to use control measures owing to the low state of the coffee market.

41. *Hardback Beetles (Cockles)*.—These made their appearance during the month of June in the Barima, Aruka and Koriabo districts, and in December in the Waini district. The Waini farmer suffered the most.

42. *Coushi Ants*.—Considerable damage was done to the citrus plants by this pest on the farms at Arukamai, Wanaima and the Hosororo Hill blocks. The younger plants at Arukamai suffered the most. Assistance was again rendered by supplying Carbon bisulphide from the station to the small farmers on the Hosororo Hill Blocks.

COMPETITIONS.

43. A coffee competition was held during November. The district was divided into two areas, viz : Barima and Aruka-Koriabo. Prizes were awarded for the best exhibit of Liberian coffee of commercial standard of not less than 25 pounds. Eight exhibits were received from the Barima district and nine from the Aruka-Koriabo district. The exhibits received this year were of very high standard.

44. The competitions have shown beneficial results as farmers are now preparing better grade coffee for the market.

The following awards were made :—

Barima District.

1st Prize	...	J. Poliah
2nd "	...	Madramootoo
3rd "	...	{ C. Poon
		{ J. Jerome

Aruka-Koriabo District.

1st Prize	...	E. Chan-a-Sue
2nd „	...	Seenandan
3rd „	...	C. Joseph

DISTRIBUTION OF SEEDS AND PLANTS.

45. The following were sent to the Botanic Gardens during the year.

Budwood—Grapefruit Marsh	...	450 buds
„ Oranges (several vars.)	...	940 „
Sour orange seeds	...	40,600 „
Pear scions—(several vars).	...	407 „
Distributed to farmers in the district		
Cacao (plants)	...	486 plants
„ (pods)	...	10 pods

L. E. McKINNON,
Agricultural Instructor,
North West District.

February 21, 1938.

DEPARTMENT OF AGRICULTURE.

REPORT ON THE SUGAR EXPERIMENT STATIONS
FOR THE YEAR 1937.

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REPORT ON THE SUGAR EXPERIMENT STATIONS FOR THE YEAR 1937.

GENERAL.

Staff.

C. H. B. Williams, M.A., A.I.C.T.A., Dip. Agr.	—Sugar Agronomist.
C. Cameron	—Field Manager.
L. A. Forte	—Field Assistant.
B. A. MacArthur	—Field Assistant.
L. A. Robinson (seconded)	—Laboratory Assistant.
H. B. Singh	—Laboratory Assistant.
A. V. Wan Ping, Dip. Agr.	—Laboratory Assistant.
J. B. Bourne	—Statistical Clerk.

Mr. Robinson resigned on June 15, to accept a position with Messrs. Booker Bros., McConnell & Co., Ltd.

2. Mr. A. V. Wan Ping, a graduate of the Imperial College of Tropical Agriculture, Trinidad, was appointed temporarily as a Laboratory Assistant on June 10.

3. Various members of the Staff were absent from duty as follows :—

- Mr. Williams, June 12 to July 1 (Casual Leave) ;
- Mr. Singh, January 4 to 18 (Sick Leave) and December 6 to 31 (Vacation Leave) ;
- Mr. Mac Arthur, July 8 to 21 (Casual Leave) ;
- Mr. Bourne, July 16 to August 15 (Vacation Leave).

Committee.

4. The following members formed the Sugar Experiment Stations' Committee for the year.

The Director of Agriculture	—Chairman.
Mr. J. C. Gibson	—Pln. Port Mourant.
Hon. M. B. G. Austin	—Messrs. Curtis Campbell & Co., Ltd.
Mr. A. Murison	—Pln. Uitvlugt.
Mr. J. Bee	—Pln. Albion.
Mr. R. E. Rhodes	—Pln. Diamond.
Mr. G. M. Eccles	—Pln. Blairmont.
Mr. C. L. C. Bourne	—Secretary to the Committee.

5. During the absences from the Colony of the substantive Members of the Committee

Hon. F. J. Seaford	acted for Hon. M. B. G. Austin,
Mr. W. H. Richards	„ „ Mr. J. C. Gibson,
Mr. L. Lywood	„ „ Mr. R. E. Rhodes, and
Mr. G. Gleadow	„ „ Mr. A. Murison.

Finance.

6. The sum of \$20,600 was voted from the funds of the Sugar Experiment Stations' Committee for the working of the Station during the year. A total of \$21,607.35 was spent. Receipts from Assessments for the year amounted to \$16,315.75 ; those from Sale of Canes to \$3,374.39 and Miscellaneous Receipts to \$376.29. A total of \$2,703.09 was spent from a grant of \$2,704.00 made from the Colonial Development Fund, and a total of \$1,081.70 was spent from the joint contribution of Messrs. Booker Bros. McConnell & Co., Ltd., and Messrs. Imperial Chemical Industries.

Equipment.

7. A bond was erected behind the garage for the storage of gasoline, kerosene, lubricating and other oils.

8. Latrines were constructed at the watch houses.

9. Foundation was made and two iron valves installed in the main drainage trench at Field 1 W. These valves replace the old wooden koker which had got beyond repair.

10. A start was made in converting the entomological (Amazon Fly) building into a biological laboratory.

CANE BREEDING AND INTRODUCTION.

11. The numbers of Demerara seedlings in field experiments and those undergoing further multiplication and selection are listed, under their year of production, in Table I.

TABLE I.
DEMERARA SEEDLINGS IN TESTS AND UNDERGOING MULTIPLICATION, E c., DECEMBER, 1937.

Year.	Number of Seedlings,	
	In Tests.	Under Multiplication, [†] Etc.
1921	2	...
1922	2	...
1928	3	...
1929	2	...
1930	15	...
1931	4	...
1932	5	2
1933	43	1
1934	8	43
1935	...	129
1936	...	481
Total	84	656

12. It will be seen that all the canes bred prior to 1921 have been eliminated and only nine of those produced prior to 1930 remain to be definitely evaluated. With the exception of three seedlings, all the 1930, 1931, 1932 and 1933 varieties which survived the preliminary eliminations are already in replicated tests. In the case of the 1930 batch, several of the experiments have now reached the second ratoon stage.

13. The 1935 seedlings have undergone their second selection and Table II compares the data obtained from the first (one-clump seedling stage) and second (grown from cuttings) selections.

TABLE II.
COMPARISON OF DATA FROM FIRST (SEEDLING) AND SECOND (CUTTING) SELECTIONS OF THE 1935 SEEDLINGS ON CLAY AND PEGASSE.

Parents. FemaleMale				No. of Seedlings Planted in Field.	Selections.				Mean Total Solids in Juice.		Mean Weight in lbs.		Mean Stalks per Stool per 1st Selection.
					1st.		2nd.		Selections.		Per Stool 1st Selection.	Per Row ft. 2nd Selection.	
					No.	%	No.	%	1st.	2nd.			
CLAY.													
D. 927/22	x	P.R. 820	A B	1305	15 3	1.15 0.23	1 5	0.08 0.38	20.3 18.8	18.0 13.6	27.2 14.7	9.0 15.0	8 6
P.O.J. 2725	x	Co. 213	A B	45	2 ...	4.44 ...	... ...	... ...	16.9 ...	... ...	58.2 ...	... ...	12 ...
D. 49/30	x	D. 66/30	A B	1245	21 6	1.69 0.48	4 10	0.32 0.80	21.5 21.6	18.8 17.1	25.8 16.7	15.0 14.0	8 9
D. 49/30	x	Diamond 10...	A B	187	2 2	1.07 1.07	... 2	1.07 ...	20.2 20.3	... 16.1	21.6 12.5	... 18.0	8 5
D. 2/31	x	D. 66/30	A B	1320	14 5	1.06 0.38	9 1	0.68 0.08	21.7 21.8	15.4 16.2	23.8 14.5	10.0 14.0	8 5
D. 11/28	x	D. 66/30	A B	180	... 1	... 0.56	... ...	... ...	22.0 ...	... ...	20.0 ...	... ...	... 5
* P.O.J. 2727	x	Diamond 10...	A B	60	5 1	8.33 1.67	... 1	... 1.67	21.4 19.23	... 20.0	26.9 18.5	... 15.0	13 10
D. 424/21	x	D. 66/30	A B	80	2 ...	2.50 ...	... 2	... 2.50	21.6 ...	... 16.4	23.5 ...	... 11.0	8 ...
B. 6835	x	S.C. 12/4	A B	150	... 1	... 0.67	... ...	... ...	19.9 ...	... ...	21.0 ...	... ...	... 7
B. 6835	x	D. 666/18	A B	90	1 ...	1.11 ...	... 1	... 1.11	21.1 ...	... 15.4	25.2 ...	... 14.0	... 7

TABLE II—(CONTINUED).

COMPARISON OF DATA FROM FIRST (SEEDLING) AND SECOND (CUTTING) SELECTIONS OF THE 19
SEEDLINGS ON CLAY AND PEGASSE.

Parents. Female. Male.			No. of Seedlings Planted in Field.	Selections.				Mean Total Solids in Juice.		Mean Weight in lbs.		Mean Stalks per Stool 1st Selection.
				1st.		2nd.		Selections.		Per Stool 1st Selection.	Per Row ft. 2nd Selection.	
				No.	%	No.	%	1st.	2nd.			
CLAY.												
P.O.J. 2725	x	Co. 281	A B 75	3	4.00	..	...	17.5	...	58.8	...	...
D. 2/31	x	Diamond 10	A B 510	14	2.74	2	0.39	22.4	18.1	24.7	13.9	8
P.O.J. 2725	x	S.C. 12/4	A B 165	1	0.61	...	...	23.0	..	18.0	...	7
M.P.R. 7	x	D. 66/30	A B 15	3	20.00	1	6.67	20.6	13.8	30.2	9.0	9
P.O.J. 2725	x	Diamond 10	A B 120	2	1.67	...	...	22.2	...	18.2	...	9
M.P.R. 7	x	Diamond 10	A B 23	1	4.35	2	8.70	20.0	17.0	22.0	10.0	...
D. 11/28	x	Diamond 10	A B 959	14	1.46	...	...	21.1	...	24.6	...	9
Co. 213	x	Diamond 10	A B 68	1	1.47	...	...	20.6	...	15.0	...	13
P.O.J. 2878	x	D. 66/30	A B 21	8	38.10	6	28.57	21.6	17.4	23.9	10.0	11
D. 666/18	x	D. 66/30	A B 570	8	1.40	2	0.35	20.3	17.0	27.2	23.0	...
D. 666/16	x	Diamond 10	A B 452	4	0.88	...	...	21.4	...	26.1	...	13
D. 88/30	x	D. 66/30	A B 44	1	2.27	...	...	21.5	...	22.5	...	18
D. 171/29	x	D. 66/30	A B 405	1	0.25	1	0.25	20.6	16.6	27.5	24.0	12
D. 171/29	x	Diamond 10	A B 250	8	3.20	...	...	21.6	...	27.4	...	10
D. 78/30	x	D. 66/30	A B 12	1	8.33	...	...	22.7	...	20.0	...	8
D. 666/18	x	D. 11/28	A B 24	1	4.17	...	...	20.5	...	30.0	...	10
Diamond 10	x	S.C. 12/4	A B 210	1	0.48	...	...	22.0	...	12.0	...	7
D. 710/33	x	S.C. 12/4	A B 45	1	2.22	...	...	21.2	...	14.0	...	5
D. 424/21	x	Diamond 10	A B 39	2	5.12	1	2.56	22.0	17.0	20.0	15.0	7
P.O.J. 2678	x	D. 2/31	A B 22	7	31.82	1	4.55	21.8	16.0	23.5	9.0	9
D. 82/30	x	D. 66/30	A B 385	5	1.30	1	0.26	21.7	18.8	23.3	11.0	8
D. 82/30	x	Diamond 10	A B 324	2	0.62	...	...	21.3	...	27.7	...	10
D. 602/22	x	D. 66/30	A B 30	2	6.67	...	...	19.2	...	17.6	...	6
D. 602/22	x	Diamond 10	A B 105	2	1.90	1	0.95	21.2	19.8	16.0	12.0	8
D. 814/12	x	Diamond 10	A B 251	2	0.80	...	...	20.2	...	24.2	...	8
D 10/30	x	Diamond 10	A B 50	4	8.00	2	4.00	21.8	18.4	27.0	14.0	8
Co. 281	x	Diamond 10	A B 28	3	10.71	...	...	20.9	...	27.7	...	18
D. 88/30	x	S.C. 12/4	A B 56	2	3.57	...	...	18.6	...	16.0	...	4

TABLE II—(CONTINUED).

COMPARISON OF DATA FROM FIRST (SEEDLING) AND SECOND (CUTTING) SELECTIONS OF THE 1935 SEEDLINGS ON CLAY AND PEGASSE.

Parents. FemaleMale			No. of Seedlings Planted in Field.	Selections.				Mean Total Solids in Juice.		Mean Weight in lbs.		Mean Stalks per Stool 1st Selection.	
				1 t.		2nd.		Selections.		Per Stool 1st Selection.	Per Row ft. 2nd Selection.		
				No.	%	No.	%	1st.	2nd.				
CLAY.													
D. 154/28	x	Diamond 10	A B 621	9 5	1.45 0.81	2 4	0.32 0.64	21.8 21.4	17.9 17.1	23.8 15.4	13.0 18.0	9 6	
D. 13/30	x	Diamond 10	A B 435	4 7	0.92 1.61	...	...	22.1 21.4	...	29.4 17.9	...	10 8	
D. 7/30	x	D. 66/30	A B 56	1 1	1.79 1.79	1 ...	1.79 ...	20.7 20.2	18.2 ...	34.0 18.0	13.0 ...	8 12	
B. 6835	x	D. 66/30	A B 60	1 1	1.67 1.67	...	...	20.0 21.1	...	25.2 17.7	...	8 7	
D. 456/33	x	Diamond 10	A B 49	...	...	...	...	...	...	...	...	...	
D. 666/18	x	S.C. 12/4	A B 135	3 ...	2.22 ...	...	...	20.7 ...	...	22.9 ...	...	7 ...	
PEGASSE.													
D. 49/30	x	D. 66/30	A B 473	3 ...	0.63 ...	1 ...	0.21 ...	19.4 ...	18.0 ...	31.3 ...	13.0 ...	11 ...	
D. 49/30	x	Diamond 10	A B 55	4 4	7.27 7.27	...	...	20.1 19.1	...	25.9 17.9	...	9 9.0	
D. 2/31	x	Diamond 10	A B 168	...	...	...	...	...	...	...	...	...	
P.O.J. 2725	x	S.C. 12/4	A B 59	1 ...	1.69 ...	...	...	20.4 ...	...	28.0 ...	...	11 ...	
P.O.J. 2725	x	Diamond 10	A B 54	1 ...	1.85 ...	...	...	22.4 ...	...	33.0 ...	...	10 ...	
D. 11/28	x	Diamond 10	A B 327	4 3	1.22 0.92	...	...	19.0 20.0	...	27.5 17.5	...	10 6	
D. 666/18	x	D. 66/30	A B 251	1 ...	0.40 ...	...	...	17.2 ...	...	30.0 ...	...	9 ...	
D. 666/18	x	Diamond 10	A B 187	2 1	1.07 0.53	...	...	19.6 20.0	...	28.5 22.0	...	8 6	
D. 82/30	x	D. 66/30	A B 96	...	...	...	...	20.8 ...	...	18.0 ...	...	...	
D. 602/22	x	Diamond 10	A B 41	1 1	2.44 2.44	...	...	18.4 19.2	...	27.0 18.0	...	10 7	
D. 814/12	x	Diamond 10	A B 69	1 ...	1.67 ...	...	...	19.0 ...	...	32.0 ...	...	12 ...	
D. 154/28	x	Diamond 10	A B 220	1 ...	0.45 ...	...	...	18.0 ...	...	30.0 ...	...	11 ...	
D. 13/30	x	Diamond 10	A B 190	4 5	2.11 2.63	1 2	0.53 1.05	20.4 19.4	18.0 14.8	26.7 18.3	8.0 10.0	10 7	
B. 6835	x	D. 66/30	A B 17	1 ...	5.88 ...	...	...	19.0 ...	...	30.0 ...	...	11 ...	
D. 602/22	x	S.C. 12/4	A B 60	1 ...	1.67 ...	...	...	20.6 ...	...	23.0 ...	...	6 ...	
D. 171/29	x	Diamond 10	A B 20	...	...	...	...	18.6 ...	...	21.0 ...	...	...	

14. The following other crosses, attempted in 1935, failed to yield any promising seedlings:

On Frontland Clay.

P.O.J. 2725	x D. 438/21	M.P.R. 151	x Diamond 10
D. 2/34	x Diamond 10	P.O.J. 2725	x Sorghum
P.O.J. 2725	x P.R. 820	P.O.J. 2725	x D. 66/30
M.P.R. 42	x D. 66/30	M.P.R. 42	x Diamond 10
D. 1/34	x P.R. 820	D. 3/34	x Diamond 10
D. 438/21	x Co. 281	S.C. 12/4	x 66/30
M.P.R. 145	x Co. 281	D. 4/28	x Diamond 10
Red Ribbon	x Diamond 10	P.O.J. 2878	x Co. 281
P.O.J. 2753	x Diamond 10	P.O.J. 2727	x 66/30
D. 83/17	x D. 66/30	P.O.J. 2878	x D. 1/28
Co. 281	x D. 66/30	D. 717/33	x Diamond 10
Co. 213	x Diamond 10	P.O.J. 2878	x D. 49/30
S.C. 12/4	x Diamond 10	S. W. 3	x Diamond 10
D. 154/28	x D. 66/30	D. 481/33	x D. 11/28
D. 481/33	x Diamond 10	D. 78/30	x D. 11/28
D. 38/30	x D. 11/28	P.O.J. 2878	x Diamond 10
P.R. 803	x Diamond 10	D. 4/28	x D. 66/30
P.O.J. 2878	x S.C. 12/4	P.O.J. 2878	x D. 4/28
P.O.J. 2753	x P.R. 820	P.O.J. 1499	x D. 66/30
M.P.R. 44	x Diamond 10	D. 38/30	x D. 66/30
D. 9/28	x D. 11/28	P.O.J. 2878	x D. 438/21
D. 481/33	x D. 66/30	D. 66/30	x S.C. 12/4
D. 710/33	x D. 66/30	P.O.J. 1499	x Diamond 10
P.O.J. 1499	x S.C. 12/4	P.O.J. 213	x D. 66/30
P.O.J. 2714	x D. 66/30	B. 6835	x Diamond 10
D. 438/21	x Co. 213	D. 438/21	x P.R. 820
P.R. 820	x D. 438/21	D. 602/22	x S.C. 12/4

On Pegasse.

M.P.R. 151	x Diamond 10	D. 927/22	x P.R. 820
P.O.J. 2725	x D. 66/30	D. 2/31	x D. 66/30
Co. 281	x D. 66/30	Co. 213	x Diamond 10
D. 82/30	x Diamond 10	D. 602/22	x D. 66/30
D. 666/18	x S.C. 12/4	D. 11/28	x D. 66/30
P.O.J. 2727	x Diamond 10	B. 6835	x D. 666/18
D. 66/30	x S.C. 12/4		

For the number of seedlings obtained, etc., from each of the above crosses, the reader is referred to *Divisional Reports 1935*, Table IV, page 63.

15. On the frontland clay at Sophia the most successful parents were:—

M.P.R. 7	x D. 66/30	P.O.J. 2878	x D. 66/30
M.P.R. 7	x Diamond 10	P.O.J. 2878	x D. 2/31
D. 10/30 x Diamond 10.			

16. The data recorded in the second portion of Table II are the first of the kind available, for no attempt has ever been made before to carry out the preliminary growing and selection of Demerara seedlings on pegasse soil. Without any definite knowledge as to which parents were likely to prove most promising for this work, it was decided to put about one quarter of the progeny from each cross on the pegasse. There was some indication in these early figures that D. 49/30 x Diamond 10, B. 6835 x D. 66/30, D. 602/22 x Diamond 10 and D. 13/30 x Diamond 10 would prove promising parents for this soil type.

17. The 1936 Seedlings have recently been subjected to their first selection; 352 were selected from the "clay" batch at Sophia and 129 from the "pegasse" batch in Field 10 N.E., Cornelia Ida, Pln. Leonora. Table III shows the crosses attempted, and the number of seedlings basketed from each cross, transplanted to field and chosen at the first selection.

TABLE III.

Crosses.			No. of Arrows used.	Number of Seedlings grown in						First Selection.			
				Clay.		Pegasse.		Total.		Clay.		Pegasse.	
				Baskets.	Field.	Baskets.	Field.	Baskets.	Field.	No.	%	No.	%
D. 27/33	x D. 66/30	...	2	2,026	1,568	674	477	2,700	1,985	35	2.32	33	6.92
D. 27/33	x Diamond 10	...	3	1,320	1,008	439	303	1,759	1,311	15	1.49		
D. 53/33	x D. 66/30	...	3	1,157	1,010	406	316	1,563	1,326	23	2.28	1	0.32
P.O.J. 2727	x Co. 213	...	4	11	11	...	...	11	11	1	9.09	...	...
P.O.J. 2753	x Co. 213	...	1	15	13	...	...	15	13	3	23.08	...	...
M.P.R. 151	x D. 53/33	...	3	17	15	...	...	17	15	3	20.00	...	...
P.O.J. 2878	x Co. 213	...	1	12	12	...	...	12	12	6	50.00	...	...
M.P.R. 151	x D. 46/33	...	2	25	25	...	...	25	25	5	20.00	...	...
Co. 213	x Diamond 10	...	3	8	7	...	...	8	7	1	14.29	...	...
D. 11/28	x D. 46/33	...	2	25	25	...	...	25	25	3	12.00	...	...
D. 126/33	x Diamond 10	...	2	308	390	104	103	412	403	13	4.33	3	2.91
D. 127/33	x D. 66/30	...	1	172	154	49	45	221	199	2	1.30	2	4.44
P. 46/33	x Diamond 10	...	3	370	310	144	98	514	448	6	1.71	...	...
D. 129/33	x Diamond 10	...	4	150	126	48	48	193	174	2	1.59	...	...
D. 456/33	x Diamond 10	...	3	167	154	45	44	212	198	6	3.90	...	...
D. 456/33	x D. 66/30	...	4	140	140	46	42	186	182	9	6.43	1	2.38
D. 513/33	x D. 66/30	...	2	140	120	34	26	174	146	3	2.50	...	...
D. 46/33	x D. 66/30	...	2	380	322	120	70	500	392	11	3.42	2	2.86
D. 127/33	x Diamond 10	...	3	140	126	52	42	152	168	6	4.76	...	...
D. 49/30	x D. 66/30	...	2	62	57	24	17	86	74	4	7.02	1	5.88
D. 456/33	x D. 129/33	...	1	32	28	...	...	32	28	3	10.71	...	...
D. 666/18	x Diamond 10	...	6	211	112	60	25	271	137	9	8.04	1	4.00
D. 241/21	x Diamond 10	...	3	400	714	240	205	1,140	919	6	0.84	1	0.49
D. 241/21	x D. 66/30	...	2	520	462	170	110	690	572	1	0.22	...	...
D. 552/33	x Diamond 10	...	2	351	293	110	100	461	353	1	0.40	...	...
D. 666/18	x D. 66/30	...	2	547	390	190	142	737	532	5	1.28	3	2.11
D. 424/21	x Diamond 10	...	2	60	54	...	...	60	54	1	1.85	...	...
D. 145	x D. 666/18	...	2	56	49	...	...	56	49	2	4.08	...	...
N.G. 251	x Diamond 10	...	1	66	56	57	49	123	105	6	10.71	8	16.33
D. 403/33	x Diamond 10	...	3	129	109	33	23	162	132	2	1.83	...	...
B. 11569	x Diamond 10	...	1	25	22	...	...	25	22	1	4.55	...	...
D. 450/33	x D. 121/33	...	1	27	23	...	...	27	25	3	12.00	...	...
D. 34/30	x Diamond 10	...	2	378	276	110	90	483	366	9	3.26	5	5.56
P. 121/33	x D. 40/33	...	1	39	14	33	16	72	30	2	14.29	...	...
D. 528/33	x Diamond 10	...	4	112	85	42	33	154	118	4	4.71	...	...
D. 2/30	x Diamond 10	...	1	137	84	65	48	202	132	6	7.14	1	2.08
D. 182/30	x Diamond 10	...	2	65	51	16	10	81	61	1	1.96	2	20.00
D. 121/33	x Diamond 10	...	1	168	56	63	14	231	70	2	3.57	...	...
C. 281	x Diamond 10	...	2	16	10	...	...	16	10	1	10.00	...	...
D. 424/21	x D. 66/30	...	1	27	14	...	...	27	14	1	7.14	...	...
D. 710/33	x Diamond 10	...	3	492	424	166	...	658	424	8	1.89	...	...
D. 49/30	x Diamond 10	...	2	556	464	169	149	725	613	22	4.74	33	22.15
B. 6835	x Diamond 10	...	1	280	283	112	69	322	302	17	7.30	3	4.35
D. 145	x Diamond 10	...	1	32	25	...	...	32	25	1	4.00	...	...
S.C. 12/4	x D. 66/30	...	3	64	42	34	32	98	74	1	2.38	...	...
B. 208	x D. 666/18	...	3	114	70	37	27	151	97	11	15.71	...	...
D. 66/30	x Diamond 10	...	3	175	140	91	40	266	180	1	0.71	...	...
D. 513/33	x Diamond 10	...	2	24	14	...	...	24	14	1	7.14	...	...
D. 450/33	x Diamond 10	...	6	159	139	...	...	159	139	3	2.16	...	...
D. 65/33	x Diamond 10	...	2	55	42	...	...	55	42	2	4.76	...	...
D. 625	x Diamond 10	...	2	220	154	62	46	282	200	11	7.14	...	...
D. 666/18	x S.C. 12/4	...	2	156	134	50	33	206	167	6	4.48	...	...
D. 2/29	x Diamond 10	...	1	38	36	...	...	38	36	1	2.78	...	...
D. 65/33	x D. 66/30	...	2	40	18	27	27	67	55	2	7.14	2	7.41
S.C. 13/4	x Diamond 10	...	3	187	140	41	30	228	170	2	1.43	...	...
D. 11/28	x Diamond 10	...	3	467	252	160	118	627	370	10	3.97	...	...
Diamond 10	x D. 66/30	...	2	350	154	43	35	393	189	4	2.60	...	...
S.C. 12/4	x D. 666/18	...	2	341	266	90	70	431	336	4	1.50	2	2.86
D. 513/33	x D. 666/18	...	2	24	14	...	...	24	14	1	7.14	...	...
D. 30/33	x D. 666/18	...	1	67	56	...	...	67	56	3	5.36	...	...
D. 450/33	x D. 38/33	...	1	90	84	60	57	150	141	4	4.76	10	17.54
D. 57/33	x Diamond 10	...	2	770	533	225	200	995	733	6	1.13	6	3.00
D. 330/33	x Diamond 10	...	3	70	54	...	...	70	54	2	3.70	...	...
P.O.J. 2727	x D. 438/21	...	2	9	8	...	...	9	8	...	...	...	...
P.O.J. 2727	x D. 46/33	...	4	...	...	...	...	...	...	...	...	...	...
P.O.J. 2727	x Sorghum	...	3	...	...	...	...	...	...	...	...	...	...
P.O.J. 2727	x Diamond 10	...	5	...	...	...	...	...	...	...	...	...	...
P.O.J. 2727	x D. 66/30	...	3	...	...	...	...	...	...	...	...	...	...
P.O.J. 2883	x Diamond 10	...	1	...	...	...	...	...	...	...	...	...	...
P.O.J. 213	x Diamond 10	...	3	...	...	...	...	...	...	...	...	...	...
P.O.J. 213	x D. 66/30	...	3	...	...	...	...	...	...	...	...	...	...
P.O.J. 213	x S.C. 12/4	...	2	...	...	...	...	...	...	...	...	...	...
P.O.J. 213	x D. 46/33	...	2	...	...	...	...	...	...	...	...	...	...
Co. 281	x Sorghum	...	2	...	...	...	...	...	...	...	...	...	...
Co. 281	x D. 438/21	...	1	...	...	...	...	...	...	...	...	...	...
Co. 281	x D. 66/30	...	2	5	4	...	...	5	4	...	...	...	...
Co. 213	x Sorghum	...	2	8	7	...	...	8	7	...	...	...	...
Co. 213	x D. 66/30	...	3	24	24	...	...	24	24	...	...	...	...
Co. 213	x D. 46/33	...	2	4	2	...	...	4	2	...	...	...	...
Co. 213	x S.C. 12/4	...	2	...	...	...	...	...	...	...	...	...	...
Co. 210	x Diamond 10	...	2	...	...	...	...	...	...	...	...	...	...
Co. 210	x S.C. 12/4	...	2	...	...	...	...	...	...	...	...	...	...
M.P.R. 49	x Diamond 10	...	2	7	6	...	...	7	6	...	...	...	...
P.O.J. 2578	x Co. 281	...	1	...	...	...	...	...	...	...	...	...	...
P.O.J. 2578	x Sorghum	...	3	16	16	...	...	16	16	...	...	...	...
P.O.J. 2878	x D. 438/21	...	1	...	...	...	...	...	...	...	...	...	...

TABLE III.—(Contd.)

Crosses.			No. of Arrows used.	Number of Seedlings grown in						First Selection.			
				Clay.		Pegasse.		Total.		Clay.		Pegasse.	
				Baskets.	Field.	Baskets.	Field.	Baskets.	Field.	No.	%	No.	%
P.O.J. 2878	x	S.C. 12/4	...	9	20	13	...	20	13	...	...	...	...
P.O.J. 2878	x	D. 53/33	...	4	4	4	...	4	4	...	...	...	...
P.O.J. 2878	x	D. 46/33	...	5	19	13	...	19	13	...	...	...	...
P.O.J. 2878	x	Diamond 10	...	10	8	6	...	8	6	...	...	...	...
P.O.J. 2878	x	D. 66/30	...	7	4	4	...	4	4	...	...	...	...
P.O.J. 2878	x	D. 666/18	...	3	...	...	...	...	...	...	...	...	...
P.O.J. 2878	x	D. 145	...	2	...	...	...	...	...	...	...	...	...
P.O.J. 2878	x	D. 456/33	...	1	...	...	...	...	...	...	...	...	...
P.O.J. 2878	x	D. 625	...	2	...	...	...	...	...	...	...	...	...
P.O.J. 2725	x	D. 438/21	...	4	15	15	...	15	15	...	...	...	...
P.O.J. 2725	x	Co. 213	...	1	...	...	...	...	...	...	...	...	...
P.O.J. 2753	x	D. 438/21	...	1	...	...	...	...	...	...	...	...	...
P.O.J. 2753	x	Diamond 10	...	3	...	...	...	...	...	...	...	...	...
P.O.J. 2753	x	D. 66/30	...	3	...	...	...	...	...	...	...	...	...
P.O.J. 2753	x	S.C. 12/4	...	2	...	...	...	...	...	...	...	...	...
P.O.J. 2753	x	D. 46/33	...	2	...	...	...	...	...	...	...	...	...
P.O.J. 2364	x	D. 53/33	...	3	...	...	...	...	...	...	...	...	...
P.O.J. 2364	x	Co. 213	...	2	...	...	...	...	...	...	...	...	...
P.O.J. 2364	x	P.O.J. 2727	...	2	...	...	...	...	...	...	...	...	...
P.O.J. 2364	x	D. 438/21	...	2	...	...	...	...	...	...	...	...	...
P.O.J. 2364	x	Sorghum	...	1	...	...	...	...	...	...	...	...	...
P.O.J. 2364	x	Diamond 10	...	4	9	8	...	9	8	...	...	...	...
P.O.J. 2364	x	D. 66/30	...	4	...	...	...	...	...	...	...	...	...
P.O.J. 2364	x	D. 46/33	...	3	...	...	...	...	...	...	...	...	...
M.P.R. 151	x	D. 66/30	...	2	...	...	...	...	...	...	...	...	...
M.P.R. 151	x	Diamond 10	...	5	...	...	...	...	...	...	...	...	...
M.P.R. 145	x	D. 46/33	...	2	...	...	...	...	...	...	...	...	...
M.P.R. 145	x	D. 66/30	...	2	...	...	...	...	...	...	...	...	...
M.P.R. 145	x	D. 53/33	...	1	...	...	...	...	...	...	...	...	...
M.P.R. 145	x	Diamond 10	...	3	90	84	30	120	103	...	...	3	15.79
E.K. 28	x	D. 438/21	...	2	...	...	...	...	...	...	...	...	...
E.K. 28	x	Diamond 10	...	3	...	...	...	...	...	...	...	...	...
E.K. 28	x	D. 66/30	...	3	...	...	...	...	...	...	...	...	...
E.K. 28	x	D. 46/33	...	2	...	...	...	...	...	...	...	...	...
E.K. 28	x	S.C. 12/4	...	2	...	...	...	...	...	...	...	...	...
E.K. 28	x	Co. 213	...	2	...	...	...	...	...	...	...	...	...
S.W. 3	x	Co. 231	...	2	...	...	...	...	...	...	...	...	...
S.W. 3	x	Diamond 10	...	1	...	...	...	...	...	...	...	...	...
S.W. 3	x	D. 66/30	...	1	...	...	...	...	...	...	...	...	...
S.W. 3	x	S.C. 12/4	...	1	11	9	...	11	9	...	...	...	...
C.P. 807	x	Diamond 10	...	1	3	3	...	3	3	...	...	...	...
C.H. 64/21	x	Diamond 10	...	1	...	...	...	...	...	...	...	...	...
Fiji	x	Diamond 10	...	1	...	...	...	...	...	...	...	...	...
B. 11569	x	D. 66/30	...	1	12	10	...	12	10	...	...	...	...
B. 6835	x	D. 666/18	...	1	11	11	...	11	11	...	...	...	...
Uba (India)	x	Diamond 10	...	2	...	...	...	...	...	...	...	...	...
D. 118/02	x	Diamond 10	...	2	13	11	...	13	11	...	...	...	...
D. 73/17	x	Diamond 10	...	1	...	...	...	...	...	...	...	...	...
D. 218/30	x	Diamond 10	...	3	...	...	...	...	...	...	...	...	...
D. 602/22	x	D. 66/30	...	2	...	...	...	...	...	...	...	...	...
D. 11/28	x	D. 66/30	...	1	6	5	...	6	5	...	...	...	...
D. 438/21	x	Diamond 10	...	2	...	...	...	...	...	...	...	...	...
D. 602/22	x	Diamond 10	...	2	70	56	25	95	80	...	...	3	12.50
D. 424/21	x	S.C. 12/4	...	1	96	75	15	111	88	...	...	1	7.69
D. 625	x	D. 666/18	...	2	110	85	40	150	111	...	...	...	...
D. 1/28	x	Diamond 10	...	2	...	...	...	...	...	...	...	...	...
D. 145	x	D. 625	...	...	10	7	...	10	7	...	...	...	...
D. 13/30	x	Diamond 10	...	2	4	4	...	4	4	...	...	...	...
D. 281/30	x	Diamond 10	...	2	264	183	117	381	283	6	3.28	...	...
D. 628/21	x	Diamond 10	...	2	36	14	...	36	14	...	...	...	...
D. 2/34	x	D. 438/21	...	1	...	...	...	...	...	...	...	...	...
D. 2/34	x	Co. 213	...	1	...	...	...	...	...	...	...	...	...
D. 47/30	x	D. 66/30	...	2	4	4	...	4	4	...	...	...	...
D. 47/30	x	Diamond 10	...	2	...	...	...	...	...	...	...	...	...
D. 154/28	x	D. 66/30	...	2	3	3	...	3	3	...	...	...	...
D. 154/28	x	Diamond 10	...	3	...	...	...	...	...	...	...	...	...
D. 171/29	x	Diamond 10	...	4	11	8	...	11	8	...	...	...	...
D. 714/33	x	Co. 213	...	1	...	...	...	...	...	...	...	...	...
D. 711/33	x	Diamond 10	...	2	...	...	...	...	...	...	...	...	...
D. 711/33	x	D. 66/30	...	2	...	...	...	...	...	...	...	...	...
D. 711/33	x	D. 456/33	...	1	2	2	...	2	2	...	...	...	...
D. 53/33	x	Diamond 10	...	3	468	350	120	588	441	...	...	1	1.10
D. 129/33	x	D. 66/30	...	1	78	67	25	103	90	...	...	...	...
D. 330/33	x	D. 66/30	...	1	16	14	...	16	14	...	...	...	...
P. 85/33	x	Diamond 10	...	3	147	141	44	191	178	...	...	...	...
D. 101/33	x	Diamond 10	...	3	114	85	35	149	117	...	...	1	3.12
D. 143/33	x	Diamond 10	...	2	242	196	102	344	233	...	...	...	...
D. 513/33	x	S.C. 12/4	...	2	7	5	...	7	5	...	...	...	...
D. 30/33	x	D. 66/30	...	2	116	70	41	157	98	...	...	...	...
D. 424/33	x	Diamond 10	...	2	...	...	...	...	...	...	...	...	...
D. 419/33	x	D. 66/30	...	2	7	7	...	7	7	...	...	...	...
D. 419/33	x	Diamond 10	...	2	...	...	...	...	...	...	...	...	...
P. 65/33	x	S.C. 12/4	...	1	14	13	...	14	13	...	...	...	...
D. 330/33	x	D. 27/33	...	2	...	...	...	...	...	...	...	...	...
D. 94/33	x	Diamond 10	...	2	19	13	...	19	13	...	...	...	...
D. 41/33	x	Diamond 10	...	2	52	22	...	52	22	...	...	...	...
D. 41/33	x	D. 101/33	...	2	5	5	...	5	5	...	...	...	...

TABLE III.—(Continued).

Crosses. Female. Male.				No. of Arrows used.	Number of Seedlings grown in						First Selection.				
					Clay.		Pegasse.		Total.		Clay.		Pegasse.		
					Baskets.	Field.	Baskets.	Field.	Baskets.	Field.	No.	%	No.	%	
D. 493/33	x	D. 41/33	...	1	...	...	...	...	...	...	...	...	...		
D. 127/33	x	D. 450/33	...	1	25	14	...	...	25	14	...	...	...		
D. 419/33	x	D. 31/33	...	2	...	...	...	...	...	...	...	...	...		
D. 493/33	x	D. 666/18	...	1	108	...	45	43	153	43	...	...	...		
D. 111/33	x	Diamond 10	...	1	100	50	33	12	133	62	...	...	...		
D. 330/33	x	S.C. 12/4	...	2	...	...	...	...	...	...	...	...	...		
D. 330/33	x	D. 668/18	...	2	...	...	...	...	...	...	...	...	...		
D. 40/33	x	D. 66/30	...	1	38	23	13	13	51	41	...	...	...		
D. 55/33	x	Diamond 10	...	1	38	...	...	...	38	...	...	...	...		
Total				...	407	17,784	13,629	5,426	3,927	23,210	17,556	352	2.58	129	3.28

18. The outstanding parents on the clay were :

P.O.J. 2753 x Co. 213, M.P.R. 151 x D. 53/33,
P.O.J. 2878 x Co. 213 and M.P.R. 151 x D. 46/33.

Other crosses which showed much promise were :

Co. 213 x Diamond 10, D. 11/28 x D. 46/33,
D. 456/33 x D. 129/33 N. G. 251 x Diamond 10,
Co. 281 x Diamond 10, D. 450/33 x D. 121/33,
D. 121/33 x D. 40/33, and B. 208 x D. 666/18.

19. On the pegasse, the most successful crosses were :

D. 49/30 x Diamond 10, D. 182/30 x Diamond 10,
D. 450/33 x D. 38/33, N. G. 251 x Diamond 10,
M.P.R. 145 x Diamond 10, and D. 602/22 x Diamond 10.

20. *The 1937 seedlings* have not all been basketed at the time of writing and will have to be discussed in a subsequent report. The season was, on the whole, unfavourable for cane breeding, but a large number of seedlings was nevertheless secured, though the number would doubtless have been still larger under more favourable circumstances. Stale filter-press cake was tried as a growing medium in the germinating boxes. It was found that germination and early growth were very satisfactory, but subsequently chlorotic symptoms appeared and the mortality was high.

21. *Canes introduced* during the year, *via* the Central Quarantine Station, Trinidad, were :—

B. 2935, Co. 313, Co. 419, Co. 421,
C.P. 28/11, C.P. 28/19, F. 31/248 and F. 31/304.

EXPERIMENTATION.

Experiments Reaped.

22. *Variety Trials*.—Of the sixty-eight variety trials reaped during the year, twenty-two were fully reported on in *Sugar Bulletin* No. 6. The remainder will be considered in detail in a later *Sugar Bulletin*. Combining the results of a large number of experiments carried out throughout the sugar belt of the Colony in the past several years, it appears that P.O.J. 2878 is about 20.2 per cent. and Diamond 10 about 18.5 per cent. better than D. 625 in total yield for three crops. Co. 213, which has not yet been thoroughly tested as a second ratoon, is now somewhere between the first two varieties. There seems every likelihood that it will surpass both when more second ratoon data are available. Of the newer canes, D. 49/30, D. 66/30, D. 67/30 and D. 75/30 continue to offer much promise now that ratoon results are becoming available. Many estates are already making small commercial plantings of these canes and others are urged to follow. Of the canes tested as

plants only, D. 147/30, D. 7/33, D. 8/33, D. 24/33, D. 30/33, D. 34/33, D. 39/33 and D. 419/33 appear interesting.

23. *Manurial Trials*.—Eleven out of the thirty manurial trials reaped during the year have been dealt with in *Sugar bulletin* No. 6. Another Bulletin, to be published about July, will contain the results of the remainder. The following points summarise briefly the main features of the work since the publication of *Sugar Bulletin* No. 6 :—

1. The optimum dose of sulphate of ammonia for both second and third ratoons of P.O.J. 2878 on flood-fallowed frontland is 4 cwt. per acre.
2. The optimum dose of sulphate of ammonia for third ratoons of Diamond 10 on flood-fallowed frontland is 4 cwt. per acre.
3. Nicifos (18 : 18) has given an excellent result in Field 36 South Diamond, Pln. Cane Grove. This fertiliser had already given good results in another field in the same vicinity (Field 51 Melville, Cane Grove). In field 10 Cottage (Experiment A), Pln. Wales, it was significantly better than nitrate of soda or sulphate of ammonia. In Experiment B in the same field it was significantly better than sulphate of ammonia, nitrochalk alone, or nitrate of soda. In neither instance in Field 10 Cottage was it significantly different from nitrochalk plus basic slag. In Field 64 Zeeburg, Pln. Uitvlugt, Nicifos was not significantly different from any of the other manures tried, but in Field 70 Zeeburg, on the same estate, it was significantly better than nitrate of soda or nitrochalk alone ; it did not, however, differ significantly in effect from nitrochalk plus basic slag or sulphate of ammonia alone.
4. Nitrochalk was tested at five sites on pegassy clay against sulphate of ammonia, the standard nitrogenous fertiliser of the Colony. At four out of the five sites the yields of the two fertilisers were statistically identical. In field 64 Zeeburg at Pln. Uitvlugt, sulphate of ammonia gave a significantly higher cane yield per acre (4.77 tons) than did nitrochalk. On none of the four occasions on which nitrochalk plus basic slag appeared in comparison with nicifos was there any significant difference between the yields of the two treatments.
5. Nitrate of soda was tested on pegassy clay in five trials against sulphate of ammonia. The yields from the two manures were statistically the same at all five sites.
6. Small dressings (one ton and half a ton) of lime and pulverised limestone have had no definite residual effect on the yields of second ratoons on flood-fallowed frontland nor on the quality of the juice. It is proposed to repeat the treatments on the same plots for the next planting cycle and so on for some years with a view to determining what are the effects of a prolonged policy of moderate liming.
7. So far as plant canes are concerned, Fields 36 South Diamond, Pln. Cane Grove ; 10 Cottage, Pln. Wales ; and 70 Zeeburg, Pln. Uitvlugt, may be expected to respond to phosphates. On the other hand, there has been no clear yield response to applications of this element to plant canes in Fields 23 Resource, Port Mourant, or 4 Palmyra, Cane Grove, or to plants and first ratoons in Fields 81 Rose Hall, Pln. Rose Hall, and 26 Rampoor, Pln. Blairmont. In Field 81 Rose Hall, Pln. Rose Hall, however, phosphates applied to plants and first ratoons have had a definite beneficial effect on the sucrose content of the latter.
8. Potassic applications have had no definite effect on plant canes in either Field 23 Resource, Pln. Port Mourant, or Field 4 Palmyra, Pln. Cane Grove ; nor have they had any effect on first ratoons in Fields 81 Rose Hall, Pln. Rose Hall, and 26 Rampoor, Pln. Blairmont.

9. The plant cane results from the irrigation-manurial trials have been very irregular and further work in this direction is necessary before any pronouncements can be made.

24. *Flood-fallowing Trials*.—Two trials of this type, reaped during the year, have already been fully reported on in *Sugar Bulletin* No. 6.

25. *Irrigation-Manurial Trials*.—Four of these were reaped during the year. They will be discussed in *Sugar Bulletin* No. 7.

26. Many other subsidiary experiments and investigations have been carried on or started during the year and it is hoped that some of the information secured will be released in papers to be published during 1938.

Experiments in Progress.

27. During the year, 21 variety and 7 manurial trials were started. Table IV lists the various experiments in progress, location, layout, etc. They totalled, at the end of the year, 78 variety, 24 manurial, 4 irrigation-manurial and 4 flood-fallowing trials.

TABLE IV.
LIST OF EXPERIMENTS IN PROGRESS ON DECEMBER 31, 1937.

Estate.	Field.	Kind of Experiment.	Treatments.	Replicates.	Age of Cycle.	Date Started or Reaped.	Layout.
BERBICK—							
Skeldon	8 Sp.	Manurial	4	4	3rd Rat.	30. 9.37	3 Lat. Sqs.
"	119-123/s0	Irrigation-	6	4	1st Lat.	6. 4.37	Ran. Bks.
Port Mourant	20 R.	Manurial	3x3	3	"	10. 8.37	Factorial.
"	23 R.	"	3x3	3	"	10. 8.37	"
"	2-4 P.M.L.	Irrigation-	6	4	"	2. 2.37	Ran. Bks.
"		Manurial					
"	28 T.L.	Flood-fallow	4	4	3rd Rat.	11. 3.37	Lat Sq.
"	15 A.O.L.	Variety	3	6	1st Rat.	2.12.37	Ran. Bks.
"	11 T. L.	"	7	6	3rd Rat.	1.12.37	"
"	1 P.M.E.	"	5	5	Plants	15. 9.37	Lat. Sq.
"	7 A.W. (a)	"	4	4	1st Rat.	16. 9.37	"
"	7 A.W. (b)	"	4	4	1st Rat.	16. 9.37	"
Albion	31 K.	Manurial	5	5	3rd Rat.	11. 8.37	"
"	23 B.	"	3	3	Plants	30. 9.37	"
"	23 B.	Variety	5	5	"	29. 9.37	"
"	49 A.	"	5	1	1st Rat.	7. 4.37	Prelim.
Rose Hall	6, 8 & 10 T.	Irrigation-	6	4	"	5. 5.37	Ran. Bks.
"		Manurial					
"	81 R.H.	Manurial	3x3	3	2nd Rat.	3.12.37	Factorial
Providence	14 E.W.	Variety	5	5	"	6.10.37	Lat. Sq.
Blairmont	71 B.L.	Manurial	5	5	3rd Rat.	7.10.37	"
"	26 Rp.	"	3x3	3	2nd Rat.	10.11.37	Factorial.
"	24 Rp.	Variety	5	6	3rd Rat.	10.11.37	Ran. Bks.
"	37 Rp.	"	7	5	Plants	4. 2.37	"
Bath	19-21 D.	Irrigation-	6	4	1st Rat.	22. 7.37	"
"		Manurial					
EAST DEMEBARA—							
Cane Grove	17 P.	Variety	2	7	2nd Rat.	7. 4.37	Ran. Bks.
"	50 S.M. (a)	"	2	5	1st Rat.	9. 4.37	"
"	50 S.M. (b)	"	3	5	"	9. 4.37	"
"	53 M.	Manurial	5	5	3rd Rat.	18. 3.37	Lat. Sq.
"	36 S.D.	"	6	6	1st Rat.	14.12.37	"
"	4 P.	"	3x3	3	"	12.10.37	Factorial.
Enmore	13 H. (a)	Variety	4	5	"	20. 4.37	Ran. Bks.
"	13 H. (b)	"	2	5	"	20. 4.37	"
"	29 E.W.	"	4	5	Plants	24. 2.37	"
"	15 B.A.	"	4	7	2nd Rat.	31. 3.37	"
"	16 E.P.	Manurial	5	5	3rd Rat.	12. 8.37	Lat. Sq.
Lusignan	2 G.H.W.	Variety	7	5	1st Rat.	30.11.37	Ran. Bks.
"	40 W.	"	3	7	2nd Rat.	19. 2.37	"
"	76 A.	"	6	7	"	21. 7.37	"
"	H.	Flood fallow	4	4	1st Rat.	13. 4.37	Lat. Sq.
"	F.	"	4	4	Plants	31. 7.37	"
La Bonne Intention	36 L.R.	Variety	3	7	2nd Rat.	1. 4.37	Ran. Bks.
"	45 M.W.	"	5	7	"	4. 8.37	"
"	15 F.	"	5	5	Plants	28. 9.37	Lat. Sq.
"	15 F.	Manurial	3	3	"	29. 9.37	"
Ogle	45 C.L.	Variety	3	5	"	25. 2.37	Ran. Bks.
"	109 E.	"	4	7	2nd Rat.	23. 9.37	"
"	45 O.	Manurial	5	5	3rd Rat.	11.10.37	Lat. Sq.
"	45 O.	"	4	4	"	11.10.37	3 Lat. Sqs.
Sophia	1 E. (a)	Variety	2	5	1st Rat.	23. 3.37	Ran. Bks.
"	1 E. (b)	"	3	5	"	23. 3.37	"
"	1 E. (c)	"	3	5	"	23. 3.37	"
"	1 E. (d)	"	2	5	"	23. 3.37	"
"	2 E.	"	7	6	2nd Rat.	28. 9.37	"
"	4 E. (a)	"	14	5	Plants	19. 8.37	"
"	4 E. (b)	"	7	5	"	7. 5.37	"
"	5 E.	"	15	4	"	23.11.37	"
"	8 E. (a)	"	3	7	2nd Rat.	17.11.37	"
"	8 E. (b)	"	3	7	"	17.11.37	"
"	9 E. (a)	"	4	5	"	26.11.37	"

TABLE IV—(CONTINUED).

Estate.	Field.	Kind of Experiment.	Treatments.	Replicates.	Age of Cycle.	Date started or reaped.	Layout.
EAST DEMERARA—(Contd.).							
Sophia	9 E. (b)	Variety	4	5	2nd Rat.	26.11.37	Ran. Bks.]
"	10 E. (a)	"	5	7	1st Rat.	17. 3.37	"
"	12 E.	"	15	4	Plants	14. 5.37	"
"	13 E.	"	13	5	"	22. 1.37	"
"	14 E.	"	4	6	1st Rat.	30.11.37	"
"	16 E. (a)	"	4	5	"	13.10.37	"
"	16 E. (b)	"	2	5	"	13.10.37	"
"	16 E. (c)	"	5	5	"	13.10.37	Lat. Sq.
"	17 E.	"	8	4	"	9.10.37	Ran. Bks.
"	2 W. (a)	"	3	5	"	16. 8.37	"
"	2 W. (b)	"	4	4	"	16. 8.37	Lat. Sq.
"	2 W. (c)	"	2	4	"	16. 8.37	Ran. Bks.
"	2 W. (d)	"	2	4	"	16. 8.37	"
"	4 W. (a)	"	4	5	"	12.11.37	"
"	4 W. (b)	"	5	5	"	12.11.37	Lat. Sq.
"	4 W. (c)	"	3	5	"	12.11.37	Ran. Bks.
"	4 W. (d)	"	5	5	"	12.11.37	Lat. Sq.
"	6 W.	"	5	6	"	22. 9.37	Ran. Bks.
"	10 W.	"	16	5	Plants	5. 8.37	"
"	11 W. (a)	"	8	5	"	12.11.37	"
"	11 W. (b)	"	8	5	"	12.11.37	"
"	13 W.	"	10	5	"	25. 2.37	"
"	14 W.	"	13	5	"	1. 6.37	"
"	15 W.	"	3	6	2nd Rat.	7.10.37	"
"	16 W.	"	16	5	1st Rat.	3.12.37	"
Providence	48 P.H.	Flood-fallow..	4	4	—	1.12.37	Lat. Sq.
Diamond	93 G.D. (a)	Variety	4	5	1st Rat.	10. 8.37	"
"	93 G.D. (b)	"	3	5	"	10. 8.37	"
"	79 G.D.	"	5	5	Plants	16. 3.37	Lat. Sq.
"	97 G.D.	"	6	7	2nd Rat.	16.11.37	Ran. Bks.
"	119 G.D.	"	5	5	Plants	28. 4.37	Lat. Sq.
"	119 G.D.	Manurial	3	3	"	5. 5.37	2 Lat. Sqs.
WEST DEMERARA—							
Wales	10 C. (a)	Manurial	6	6	1st Rat.	24.11.37	Lat. Sq.
"	10 C. (b)	"	6	6	"	18.11.37	"
"	39 V. (a)	Variety	4	5	"	8. 4.37	Ran. Bks.
"	39 V. (b)	"	3	5	"	8. 4.37	"
"	3 Y.R.	"	3	5	Plants	18. 3.37	"
Leonora	16 Gv.	"	5	7	2nd Rat.	1.10.37	"
"	53 Sv. (a)	"	3	5	1st Rat.	15. 4.37	"
"	53 Sv. (b)	"	5	5	"	15. 4.37	Lat. Sq.
"	35 C.I.	"	5	5	Plants	6.10.37	"
"	35 C.I.	Manurial	3	3	"	6.10.37	"
Uitvlugt	43 E.	"	3 x 3	3	"	23.10.37	Factorial.
"	31 E.	"	3 x 3	3	1st Rat.	17. 3.37	"
"	64 Z.	"	6	6	"	27.10.37	Lat. Sq.
"	69 Z.	"	6	6	"	9. 8.37	"
"	13 E.	Variety	2	5	"	14. 4.37	Ran. Bks.
"	46 De W.	"	3	7	"	16. 2.37	"
"	71 M.Z.	"	9	5	"	25.11.37	"
"	42 W.	"	3	7	2nd Rat.	16. 3.37	"
Versailles	34 V.S.	"	4	4	Plants	15.10.37	Lat. Sq.
"	34 V.S.	Manurial	3	3	"	15.10.37	"

28. Table V summarises, for each variety, the number of experiments in which it occurs, and their cycle ages.

TABLE V.
VARIETIES IN REPLICATED TESTS, DECEMBER 31, 1937.

Variety.	Number of Experiments as				Total.	Variety.	Number of Experiments as				Total.
	Plants.	1st Rat.	2nd Rat.	3rd Rat.			Plants.	1st Rat.	2nd Rat.	3rd Rat.	
Co. 213	2	2	4	...	8	D. 15/33	1	1	...	...	2
D. 625	...	...	6	2	8	D. 16/33	1	...	...	...	1
Diamond 10	5	9	8	2	24	D. 20/33	1	...	...	...	1
F.C. 916	3	5	...	...	8	D. 24/33	1	2	...	...	3
M.P.R. 7	3	2	...	...	5	D. 25/33	...	1	...	...	1
M.P.R. 42	1	4	...	...	5	D. 27/33	...	1	...	...	1
P.O.J. 2727	...	2	...	...	1	D. 30/33	...	1	...	...	1
P.O.J. 2753	1	1	...	...	3	D. 31/33	2	1	...	...	3
P.O.J. 2878	15	33	6	2	66	D. 34/33	1	1	...	...	2
S.W. 3	...	2	...	...	2	D. 33/33	3	2	...	...	5
T. 1198	...	4	2	...	6	D. 39/33	2	2	...	...	4
D. 309/21	2	1	1	1	5	D. 40/33	1	2	...	...	3
D. 628/21	5	4	1	1	11	D. 42/33	...	1	...	...	2
D. 927/22	...	3	3	1	7	D. 44/33	2	...	...	...	1
D. 1758/22	1	...	...	...	1	D. 46/33	3	3	...	...	6
D. 4/28	...	2	1	1	4	D. 49/33	1	...	...	...	1
D. 9/28	2	1	2	...	5	D. 51/33	1	...	...	...	1
D. 11/23	1	3	1	2	7	D. 57/33	2	1	...	...	3
D. 100/29	1	...	...	...	1	D. 58/33	1	...	...	...	1
D. 173/29	3	...	...	...	3	D. 63/33	1	...	...	...	1
D. 49/30	...	2	8	...	10	D. 83/33	1	...	...	...	1
D. 50/30	1	4	1	...	6	D. 85/33	2	...	...	...	2
D. 66/30	1	4	4	...	9	D. 94/33	...	1	...	...	1
D. 67/30	1	1	2	...	4	D. 102/33	1	1	...	...	2
D. 75/30	4	4	1	...	9	D. 107/33	...	1	...	...	1
D. 113/30	...	3	2	...	5	D. 121/33	1	1	...	...	2
D. 147/30	1	4	...	...	5	D. 125/33	...	1	...	...	1
D. 150/30	1	2	1	...	4	D. 148/33	2	...	...	...	2
D. 164/30	...	4	2	...	6	D. 169/33	1	...	...	...	1
D. 167/30	...	2	1	...	3	D. 178/33	1	...	...	...	1
D. 170/30	3	4	2	...	9	D. 189/33	1	...	...	...	1
D. 173/30	2	2	2	...	6	D. 221/33	1	...	...	...	1
D. 180/30	...	4	3	...	7	D. 250/33	1	...	...	...	1
D. 205/30	2	2	2	...	6	D. 295/33	3	1	...	...	4
D. 235/30	6	1	1	...	8	D. 330/33	7	1	...	...	8
D. 1/31	...	1	1	...	3	D. 419/33	1	1	...	...	2
D. 2/31	4	...	2	...	5	D. 450/33	2	...	...	...	2
D. 3/31	1	...	...	...	1	D. 456/33	2	...	...	...	2
D. 4/31	1	...	...	...	1	D. 552/33	1	...	...	...	1
D. 5/32	1	...	...	...	1	D. 109/34	1	...	...	...	1
D. 7/32	...	1	...	...	1	D. 110/34	1	...	...	...	1
D. 10/32	1	...	...	...	1	D. 111/34	1	...	...	...	1
D. 11/32	1	...	1	...	2	D. 112/34	1	...	...	...	1
D. 12/32	1	...	...	...	1	D. 113/34	2	...	...	...	2
D. 7/33	1	3	...	...	4	D. 116/34	1	...	...	...	1
D. 8/33	...	1	...	...	1	D. 119/34	1	...	...	...	1
D. 9/33	...	1	...	...	1	D. 166/34	2	...	...	...	2
D. 11/33	...	1	...	...	1						

MISCELLANEOUS.

29. Table VI gives statistics, for recent years, as to seedlings bred, field experiments started and reaped, cane cuttings distributed, cane samples analysed, etc.

TABLE VI.
STATISTICS OF SEEDLINGS, FIELD EXPERIMENTS, CANE DISTRIBUTION, CANE, SOIL AND ROOT SAMPLES, CANE SOLD AND VISITS PAID TO ESTATES, 1929-1937.

Year.	Seedlings Basketed.	Field Experiments.		Cane Cuttings Distributed.		Cane Samples.		Soil Samples Taken.	Root Samples Taken.	Cane sold to Ptn. Ogle.		No. of days visiting Estates.
		Started	Harvested.	No. of Cuttings.	No of Bags.	No. Taken and Analysed.	Cane Crushed (Tons).			Punt-loads Delivered.	Net Receipts. \$	
1929...	6,100	3	7	119,600	920	2,200	25	50	...	63	1,099.55	18
1930...	9,235	17	1	259,740	1,998	36	1	62	...	54	296.09	90
1931...	4,240	17	17	388,700	2,990	731	16	136	...	313	1,444.56	151
1932...	5,290	27	34	395,720	3,044	1,134	34	112	...	542	2,974.55	185
1933...	18,974	30	47	174,580	1,313	2,490	52	175	1,272	599	3,635.68	259
1934...	24,147	30	58	39,978	307	2,425	53	400	560	380	2,767.31	197
1935...	19,898	34	55	486 200	3,740	2 719	50	310	...	521	3,720.52	212
1936...	23,210	60	71	509 600	3,920	4,804	40	258	...	534	3,378.75	258
1937...	...	28	104	333,222	2 563	4,192	46	336	...	551	3,374.39	237

30. *Field Days*.—A system of Field Days for the sugar estate staffs was inaugurated in 1936 and two such days held in that year. Three field days were held during 1937 when a total of 66 attended. The visitors were conducted around the Station during the morning and after lunch a few brief talks, followed by discussions, were given by the Director of Agriculture, Agronomist, Chemist and Entomologist. These occasions are much appreciated both by the sugar planters and the staff of the Sugar Experiment Station and it is proposed to make them a regular feature of the work.

31. The usual annual visit from small farmers of East and West Demerara was also received during the year.

32. *Cane Cuttings*.—Three cuttings each of the varieties D. 49/30, D. 66/30, D. 625 and Diamond 10 were despatched to Instituto Biologico, Sao Paulo, Brasil. In addition, five hundred cuttings of each of the varieties D. 625, Diamond 10, P.O.J. 2878 and S.C. 12/4 were despatched to Cayenne, French Guiana.

33. *Cane Fluff*.—One tin of cane fluff of each of the following crosses was sent to New South Wales :—

Co. 281 x Diamond 10, P.O.J. 2878 x D. 66/30,
D. 450/33 x D. 66/30, P.R. 820 x D. 456/33,
and Co. 213 x D. 66/30.

34. *Publications*.—*Sugar Bulletin* No. 6 was issued during the year, the Agronomist, Chemist and Field Manager collaborating in its preparation. The Agronomist contributed to *The Agricultural Journal of British Guiana* (Vol. VIII, No. 2, p. 84) "The Variety and Fertiliser Position of the Sugar Industry, III," to *Nature* (Vol. 139, No. 3510, p. 244) "Rainfall and Moon Phases in the Tropics," and to *Tropical Agriculture* (Vol. XIV, No. 3, p. 61) "A portable Scale for Experimental Work." Messrs Cameron and Singh contributed to *Tropical Agriculture* (Vol. XIV, No. 11, p. 313) "The Boring Points for Refractometer Tests of Sugar-Cane." Mr. Cooper contributed to *The Agricultural Journal of British Guiana* (Vol. VIII, No. 1, p. 4) "Cane Growth Studies in British Guiana." The Agronomist prepared several notes for *The Farm Journal of British Guiana* and submitted monthly, quarterly and half-yearly reports.

35. *Lectures*.—During the first half of the year a course of lectures on sugar-cane was given to a group of teachers undergoing a special course in Agriculture and Rural Science. Two examination papers were set and the answers corrected.

36. *Rainfall*.—Table VII compares the 1937 monthly rainfall at Sophia Sugar Experiment Station with the monthly average for the seventeen-year period, 1921-37.

TABLE VII.
COMPARISON OF THE RAINFALL AT SOPHIA FOR THE YEAR 1937, WITH THE AVERAGE FOR 1921-37.

Month.	Actual Rainfall, 1937, in.	Average Rainfall, 1921-37, in.	Excess or Deficit, in.
January	14.63	8.91	5.72
February	0.75	3.49	-2.94
March	1.53	4.19	-2.66
April	5.19	5.25	-0.06
May	13.09	11.80	1.29
June	19.95	14.45	5.50
July	19.70	11.16	8.54
August	8.23	8.10	0.13
September	2.61	2.69	-0.08
October	4.57	3.99	0.58
November	3.60	5.65	-2.05
December	12.76	14.56	-1.80
Total	106.61	94.44	12.17

37. It will be seen that the total for the year exceeded the normal. This was mainly due to excesses in the already well-watered months of January, June and July. On the other hand, the Spring dry season was accentuated by a severe shortage of rain in February and March, and November was also drier than usual.

38. *Acknowledgements.*—The courtesy and co-operation received from the sugar estates are gratefully appreciated. The writer desires also to thank the Stations' Staff for its zealous assistance.

C. HOLMAN B. WILLIAMS,
Sugar Agronomist and Plant Breeder.

March 15, 1938.

DEPARTMENT OF AGRICULTURE.

REPORT ON THE CHEMICAL DIVISION FOR THE YEAR 1937.

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REPORT ON THE CHEMICAL DIVISION FOR THE YEAR 1937.

STAFF.

R. R. Follett-Smith, B.Sc., A.R.C.S.—Chemist.

(January 1 to June 13).

D. W. Duthie, M.A., B.Sc., Ph.D., F.I.C.—Chemist.

(August 7 to December 31).

C. L. C. Bourne—Assistant Chemist.

Mr. R. R. Follett-Smith resigned his post on June 13, in order to take up an appointment as Consulting Chemist to a group of sugar firms. Mr. C. L. C. Bourne acted as Chemist until the writer assumed duty on August 7.

GENERAL.

2. During the past few years this Division has received assistance, for staff and equipment, from Messrs. Booker Bros., McConnell & Co., Ltd., the Colonial Development Fund, and the Imperial Chemical Industries. All these grants have now been withdrawn and the Divisional programme has been altered to fit the changed conditions. Latterly, much of Mr. Follett-Smith's work was concerned with a soil survey of the sugar cane areas of the Colony, with manurial trials in collaboration with the Sugar Agronomist and with chemical control in the sugar factories. Since most of the advisory work on sugar cane soils and on factory control will still be carried out by Mr. Follett-Smith, the work of the Division will now be concerned with the investigation of fundamental problems of sugar cane soils, in addition to more general work on other crops.

SUGAR CANE SOILS.

3. It has been shown repeatedly (Annual Reports, Chemical Division 1931, para. 7; 1932 para. 20; 1936 para. 14) that the continued application of sulphate of ammonia alone has a definite acidifying effect on soil. This is partly, at least, counteracted by the practice of flood-fallowing (Annual Report, Chemical Division, 1934, para. 18), but it is an undoubted fact that the cultivated clay soils of the Colony are gradually becoming more acid. The comparatively high cost of limestone, coupled with the lack of economic response to liming in manurial trials, render it advisable to investigate the problem before a stage is reached when the yield is affected.

4. McGeorge found in Hawaii that acidity alone (*i.e.*, excess of hydrogenions) has no toxic effect on sugar cane and he attributed low yields of highly acid soils to associated factors. Thus liming might not counteract the deleterious effect of sulphate of ammonia and the following argument is further evidence of the complexity of the problem. In 1909, Harrison (W.I.B. IX, p. 27) recorded the examination of eighty-seven samples of soil and their water extracts were all found to be alkaline to litmus (*i.e.*, pH over 7.0). Follett-Smith's results in 1932 for 2,893 sugar cane soils (Annual Report, Chemical Division, 1932, para. 23) showed that the majority had a pH of around 5.0, which means that in 23 years there had been a *hundred-fold increase in acidity*. However, Harrison found the alkalinity to be due to the presence of sodium carbonate and of the soluble double carbonate of magnesium and sodium, both these compounds being undesirable in sugar cane soils. To some extent, therefore, the increase in acidity has been *beneficial*, in that it has been caused by the removal of these sodium compounds. Yet the frequent occurrence of pH value of 4.5 and less show that there is a tendency to produce sticky

hydrogen clays which may be of low productivity. Preliminary work on this problem has been carried out, but as yet no conclusive results have been obtained.

5. It will thus be seen that the changes occurring in the clay soils of the Colony present a complicated problem. The Sugar Cane Agronomist is attacking the problem by means of field trials with non-acidifying manures and further soil studies will be carried out by this Division.

RICE.

6. The recent restriction in sugar production has made it imperative that crops other than sugar should receive more intensive study. Rice, being the second agricultural industry of the Colony, naturally comes first in such a programme and the work carried out by this Division during the past eight years will be continued and extended. It will consist of manurial trials, soils studies and investigation of methods of parboiling, drying and milling. After visiting Surinam early in the year, Mr. Follett-Smith recommended the purchase of a Universal Milling Device from Messrs. Guidetti and Artioli, Italy, and this apparatus was received at the end of December. It is designed for milling small samples (100 gm.) of padi and will be of the greatest value in experimental work.

7. In the Annual Report Chemical Division 1936, p. 71, it is stated that "there is a strong suggestion, but no definite proof, that higher yields (of padi) are obtained on areas containing more soil organic matter, and that the soil should contain at least 1.5 per cent. of this constituent." It has also been shown by Follett-Smith (Agricultural Journal, British Guiana, Vol. VII, 1936, No. 2, p. 109) that a decline in yield is being experienced in most parts on the older rice lands of the Colony. As this drop in yield may have some connection with the organic matter in the soil, laboratory soil studies will be undertaken in conjunction with the manurial trials.

FISH POISON PLANTS.

8. Work on Haiaris has been greatly affected by the discovery that 'White' Haiari is not conspecific with Cubé. This is fully discussed in the report of the Botanical Division. The chemical methods of evaluation of insecticidal plants are being investigated by Dr. Tattersfield at Rothamsted and it is considered best to wait until these methods have been standardised to some extent before further work is carried out. By the methods used at present, the Haiaris have shown low percentages of rotenone (Georgi, Malayan Agricultural Journal XXV 1937, p. 336) but the associated insecticidal compounds (deguelin, tephrosin, toxicarol) are now assuming greater importance. When the latter can be satisfactorily measured, it will be of value to re-examine the indigenous fish poison plants. Meanwhile, a growing collection of these plants is being established in the Botanic Gardens including *Derris elliptica* and *Tephrosia vogelii* which were obtained from Puerto Rico. Material for analysis and for experimentation will thus be available when the time is opportune for further chemical work.

SUGAR EXPERIMENT STATION LABORATORY.

9. The laboratory of the Sugar Experiment Station, Sophia, is supervised by the Chemist and Assistant Chemist and the work consists of the crushing and analysis of samples of cane from experimental plots. The measurements made are sucrose per cent. cane, juice purity and glucose ratio. During the year under review, 3,721 samples were examined, the average sample weight being 27 lb. 471 field refractometer readings were also carried out by the laboratory staff. The results are included in the annual Sugar Bulletins.

BANANAS.

10. Towards the end of September the Chemist visited the Department of Agriculture's banana experiment at Middlesex, West Bank, Demerara. Composite soil samples (0-6", 6-12", 12-18") were taken from 5 spots in the area and similar composites were taken from 5 spots in an adjoining area which had recently been

cleared for planting bananas after being in bush for about 20 years. The samples were examined for normal and exchange acidity by the quinhydrone electrode and for lime requirement by the Hardy-Lewis method. The results are given below :

Sample No.				Depth.	Normal pH.	Exchange pH.	L. R. tons/acre 6"
D. 1438	...	New Cultivation	...	0-6"	4.38	3.69	11.7
D. 1439	...	do.	...	6-12"	4.28	3.69	11.0
D. 1440	...	do.	...	12-18"	4.25	3.68	9.9
D. 1441	...	Banana Experiment	...	0-6"	4.38	3.73	12.3
D. 1442	...	do.	...	6-12"	4.25	3.66	10.8
D. 1443	...	do.	...	12-18"	4.31	3.68	10.4

It is clear that this soil is extremely acid and in view of the high lime requirement it would not be profitable to correct the acidity with ground limestone.

COMPOST.

11. In this Colony it is customary for rice farmers to burn the straw after harvesting the crop and valuable organic manure is thereby lost. On the other hand, leaving the straw on the field would impede ploughing before the next crop and the manufacture of compost from straw normally requires a chaffing machine. Further, it has not yet been proved that the application of organic manures will give a profitable crop increase on these soils and few farmers would be prepared to add nitrogen, lime and phosphate in order to produce a good compost. The ordinary methods of composting are thus impracticable and an attempt was made to produce compost manure by a simpler method. Rice straw was soaked in water and made into heaps roughly 4 feet high by 10 feet by 3 feet. Temperature readings were taken at intervals and it was found that the heaps reached 50°C. in places and a good growth of fungus mycelium was observed, but the straw settled down so rapidly that it was soon packed too tightly for adequate aeration. Accordingly, straw was mixed with grass and bush cuttings, but even then the straw did not break down rapidly, and the compact mass of partly decomposed straw was difficult to turn. The trial thus proved disappointing and further work was postponed until the relationship between soil organic matter and yield should be more definitely established on these rice soils.

VISIT OF PROFESSOR F. HARDY.

Professor F. Hardy of the Imperial College of Tropical Agriculture, Trinidad, spent ten days in the Colony during the month of December. The opportunity was taken to discuss the soil problems of the Colony.

PUBLICATIONS.

The following publications by the writer appeared during the year ;—

"Biochemical Problems in Cacao Production" *6th. Ann. Report. Cacao Res. Trinidad*, p. 48.

"Studies in Tropical Soils IV. Organic Transformations in Soils, Composts and Peat" *Jri. Agr. Science*, 1937, p. 162.

"Soil Investigations in Arena Forest Reserve, Trinidad" in collaboration with F. Hardy and G. Rodrigues (summarised account by R. L. Brooks) *Imp. For. Inst. Paper*, No. 6, 1937.

"Soil Organic Matter and Tropical Agriculture—a Discussion" *Agricultural Journal of B.G.*, December, 1937.

ACKNOWLEDGMENTS.

I am greatly indebted to Mr. R. R. Follett-Smith for invaluable advice and help during this period.

I also wish to acknowledge the generous support of the Assistant Chemist, Mr. C. L. C. Bourne.

D. W. DUTHIE,
Chemist.

DEPARTMENT OF AGRICULTURE.

REPORT ON THE BOTANICAL AND PATHOLOGICAL DIVISION FOR
THE YEAR 1937.

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REPORT ON THE BOTANICAL AND PATHOLOGICAL DIVISION FOR THE YEAR 1937.

STAFF.

E. B. Martyn, B.A.
N. Persaud

— Botanist and Plant Pathologist.
— Laboratory Assistant.

GENERAL.

The Botanist and Plant Pathologist was granted 3 months and 25 days' leave of absence in England and left the colony on June 4. He returned to the Colony and resumed duty on November 15. While on leave he attended, from July 8 to 23, the Fourth International Grassland Congress, as the Colony's representative.

DISEASES OF MAJOR CROPS.

2. No diseases of major crops requiring investigation were reported during the year.

DISEASES OF MINOR CROPS.

Bananas.

3.—*Cercospora Leaf Spot*.—Bad outbreaks of the leafspot caused by *C. musæ* Zimm. occurred on the Gros Michel bananas in the Department's 5-acre experimental banana plots at Middlesex, No. 2 Canal, West Bank, and at Supply, East Bank, Demerara River. The outbreak became suddenly apparent in August, when, within a few days the leaf symptoms appeared very markedly throughout the areas concerned. The plants at this time were some 4 months old. As a control measure all badly affected leaves of plants both on the plots and in the immediate neighbourhood were stripped off and burnt. By September the disease had become less serious, but the first outbreak and subsequent stripping had caused a severe set back to the plants. In November a further symptom of the disease was observed, namely, the breaking off of the petiole of affected leaves owing to a secondary rot close to the point of junction with the pseudo-stem, resulting in the leaves hanging down.

4. This disease has caused considerable damage to banana cultivation in Surinam, and is considered serious in Central America. It has been observed in the Colony previously, but this outbreak may have been due to the cultivation of larger areas than is usual under bananas alone, or to a combination of seasonal conditions especially favourable to the fungus, or in part to both factors. It is intended to carry out spraying experiments to investigate the economics of this method of control, and it remains to be seen whether another bad outbreak will occur during the ensuing mid-year rains or not.

5. *Panama Disease*.—About 9 to 10 per cent. of the Gros Michel bananas at Middlesex and at Supply were attacked by this wilt disease (*Fusarium cubense* E.F.Sm.) and killed. The plants were first attacked in September when some 5 months old.

FISH POISONS.

6. A very interesting paper by Messrs. B. A. Krukoff and A. C. Smith appeared in the American Journal of Botany (Vol. 24, No. 9, 573-587, Nov., 1937) on the Rotenone Yielding Plants of South America, in which the nomenclature of these plants is elucidated. They show that the Black and White Haiaris, Fish Poisons of this Colony, the latter of which had previously been named *Lonchocarpus Nicou* (Aubl.) DC., are in fact two separate species and distinct from the Barbasco and Timbo of the Amazon basin, with which the Waite Haiari, at any rate, was until recently believed to be conspecific. The Barbasco and Timbo, of high rotenone content, are named respectively *L. utilis* A. C. Smith sp. nov., and *L. Urucu* Killip and Smith. White Haiari, which appears to be generally distributed throughout this Colony, has been named *L. Martynii* A. C. Smith sp. nov., and Black Haiari, which occurs both in this Colony and in Surinam, is recognised

as *L. chrysophyllus* Kleinb. All these species are found to differ from each other and also from the original plant described by Aublet as *L. Nicou*, and on the very scanty material of which this one species had hitherto been thought to embrace all the abovementioned Fish Poisons. This recent determination of the Haiaris explains readily why their poor rotenone content should differ so from that of Barbasco and Timbo, and also accounts for the differences in habit which had been observed between them and such accounts as were available of the plants of the Amazon basin.

FORESHORE VEGETATION.

7. Observations on the foreshore between Kitty and Liliendaal were continued during the year, and very little change was observed. The mudflat at Liliendaal still remains bare of all vegetation.

JENMAN HERBARIUM.

8. Five typescript copies were made of an index of the indigenous Phanerogams in the Herbarium, taken from the card index completed in the previous year. Three were sent to Kew, two of which were forwarded thence to New York Botanic Garden and Utrecht Herbarium respectively. One copy was sent to the Conservator of Forests and the other retained in the Herbarium.

9. As an immediate result, the Utrecht Herbarium asked for the loan of all the Department's material of Lauraceae for examination by a worker who is monographing the family. This request was complied with at the end of the year.

10. The routine remounting of specimens was continued throughout the year.

E. B. MARTYN,
Botanist and Plant Pathologist.

January 15, 1938.

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DEPARTMENT OF AGRICULTURE.

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REPORT ON THE ENTOMOLOGICAL DIVISION FOR THE YEAR 1937.

STAFF.

L. D. Cleare, F.R. Ent. S.	...	...	Entomologist.
C. Williams ..	...	...	Laboratory Assistant.

PRINCIPAL CROPS.

Sugar-cane.

During the year a status survey of the Amazon fly, *Metagonistylum minense* Towns. was carried out.

2. It will be remembered that the Amazon fly was introduced into British Guiana between August and October 1933. Extensive rearings of the fly were then undertaken both at the headquarters laboratory and on certain sugar estates and as the result, by November 1935, some 379,000 of these flies had been reared and all the sugar estates had been colonized with the fly. For about three years now, therefore, the fly has been continuing on its own.

3. In the survey it was not possible to make examinations of all the sugar estates in the Colony owing to the pressure of other work and the very limited staff of assistants, but a total of fifteen estates was included in the examination, extending from Plantation Skeldon on the extreme east of the Colony to Plantation Versailles and Schoon Ord on the West Bank, Demerara.

4. On the fifteen estates a total of 212 fields was examined and in 73 per cent. of these the Amazon fly was found parasitizing *Diatraea*. In these examinations some 30,332 "deadhearts" were cut out, of which 56.3 were empty, and 5.5 per cent. were the result of "other causes" including white grubs (hardback beetles) and rats. In the remainder *Diatraea* were present in the proportion of 43.9 per cent. *D. saccharalis* and 56.1 per cent. *D. canella*. Of the *D. saccharalis* population in "Positive Fields" 16.0 per cent. were parasitized by the Amazon fly ("Current Positive Parasitism") but if all fields, both positive and negative, are considered, the parasitism was 13.7 per cent. of the *D. saccharalis* population.

5. As to the number of parasites per host, the records showed that 59.4 per cent. contained but a single parasite, 30.5 per cent. contained two parasites, 7.6 per cent. had three parasites, 1.9 per cent. had four parasites, and only 0.5 per cent. contained five parasites per host.

6. In January, 1937, Mr. H. W. B. Moore recorded a hyperparasite of the Amazon fly from Plantation Albion, Berbice.

7. This appearance of a hyperparasite was not unexpected for it had long been known that the native fly parasite of *Diatraea*, *Leskiopalpus* (*Stomatodexia*) *diadema* Wied. was attacked by the hyperparasite *Signiphora dipterophaga* Girault, and the possibility of this insect attacking *Metagonistylum* was well recognised at the time of the introduction of the Amazon fly. This was confirmed when a determination of the insect was made by Dr. C. Ferrière of the Imperial Institute of Entomology.

8. In addition, Squire, in a departmental report on the position of the Amazon fly in 1935, had mentioned the finding of a puparium of *Metagonistylum* which apparently had been attacked by a hyperparasite although he did not obtain any specimens of the insect.

9. In the survey just carried out, on four estates of the fifteen the hyperparasite was obtained, namely, Plantations Port Mourant, Albion, Diamond and Farm. This would indicate that the hyperparasite is well distributed over the sugar area.

10. Of the forty-five fields examined on these estates; in 13, or 29 per cent. were hypers found, while of 178 puparia collected, 17 or 9.6 per cent. produced hyperparasites. If, however, the whole Amazon fly population of these fields is considered, namely 516 larvae and puparia, the percentage destroyed by hyperparasites would only be 3.3 per cent.

11. A full account of this survey is being published in an early number of the *Agricultural Journal*.

12. In September, 1937, Dr. K. A. Bartlett of the United States Department of Agriculture, Puerto Rico Experiment Station, visited the colony to obtain Amazon fly material for Puerto Rico. While in the colony Dr. Bartlett made this laboratory his headquarters, and carried out rearings of the fly and material was sent to Puerto Rico by air express. In securing this material we were greatly assisted by the different sugar estates, and I would take this opportunity of expressing thanks to Mr. R. E. Rhodes, attorney of the Demerara Company Limited, and Mr. G. M. Eccles, manager of Blairmont Estate, for their ready help and co-operation in this matter.

Rice.

13. There were no serious outbreaks of insects affecting rice during the year.

Coconuts.

14. Outbreaks of the coconut caterpillar, *Brassolis sophorae* L., occurred both in Georgetown and New Amsterdam and clean-up campaigns were carried out in both these places.

15. It is gratifying to report that in these outbreaks both in Georgetown and in New Amsterdam the owners of palms in most instances responded readily and the work was executed in a manner hitherto not obtained. The few individuals who refused to carry out the control measures, were served with notices under the Plant Diseases and Pests (Prevention) Ordinance, and thereafter complied.

16. The clean-up campaigns which were undertaken in these instances involved the visiting and supervision of control work in 475 premises in Georgetown and 309 in New Amsterdam, involving a total of 2,192 palms. This work occupied the whole time of the laboratory assistant for a total period of just under three months of the year.

17. On the upper East Coast there were a few small outbreaks but no serious damage was caused.

OTHER CROPS.

18. *Plantains and Bananas*.—Plantains and bananas appear to be increasingly affected by the plantain scarring beetle, *Colaspis hypochlora* Lefev., which is now widespread over the coastlands.

19. Investigations on this insect were commenced by Mr. F. A. Squire while he was with the Department but unfortunately Mr. Squire left the colony before this work was completed.

20. With the increasing interest being taken in these crops, it is proposed to restart investigations on this insect, but it must be pointed out that the work will of necessity be slow both on account of the nature of the problem and the shortage of staff of the division.

21. *Garden and truck crops*.—The red stinging-ant, *Solenopsis geminata* F. likewise appears to be becoming increasingly important as a pest of garden and truck crops. While the nests of this insect may be effectively destroyed with carbon bisulphide some other means of control is often desirable and work in this direction is in hand.

OTHER INVESTIGATIONS.

22. *Rats*.—The outbreak of rats in Berbice reported last year continued and received attention. Extensive trials with poison baits were undertaken in conjunction with the estate authorities, in which most of the wellknown baits were tried besides a number of others that it was considered might be suitable for the particular rodent.

23. Most of these baits proved quite useless, but fairly good results were obtained with thallium of the stock formulae and with sodium arsenite in a bait devised by the writer.

24. As is usual with attempts to control rats with poison baits, it was found that the rodents sooner or later began to recognise the baits and when this occurred refused to take them. As regards the thallium baits there appeared to be developed a certain tolerance to this poison and it was found necessary to increase the quantity as time went on.

25. An interesting development was the appearance of Cuterebrid larvae, *Cutobra* sp., in fair numbers of the rats, which apparently caused some mortality.

26. The rats has been determined by Mr. T. C. S. Morrison-Scott of the British Museum (Natural History) as a new sub-species to which he has given the name *berbicensis*, and was described by him in a paper under the title of "An apparently new form of Cricetine from British Guiana" in *Annals and Magazine of Natural History* Ser. 10, Vol. XX, p. 535-538, November 1937. The name of this rat is therefore *Hoplochilus sciureus berbicensis* M.S.

27. It is proposed to publish an account of this outbreak in the near future.

28. *Beetles Boring into Rum Puncheons*.—At the request of Messrs. Curtis Campbell and Co., Ltd., an investigation was undertaken during the latter part of the year on beetles boring into rum puncheons as the result of a complaint received from London of such damage.

29. The staves from which these puncheons are made are imported from the U.S.A. and although they show damage cause by insects, have not been found on arrival to be so infected.

30. The conclusions finally arrived at was that the puncheons in question were, in all probability attacked by beetles of the genus *Xyleborus* while in transit to London and that the beetles so attacking the puncheons were in the dunnage wood, comprising various local woods, used in the shipment.

COLLECTION AND LIBRARY.

31. The work on the collection continued during the year but as the result of pressure of other work, it was not possible to give the attention to it that it was hoped. There still remains therefore a good deal of work in rearranging, especially in the alcoholic collection.

32. During the year one new cabinet of ten drawers was added. This was made locally and is a very creditable piece of workmanship.

33. The collection of insects of this division has now reached fair proportions and it is of considerable value. To maintain it properly takes a good deal of time and with the very small staff it becomes increasingly difficult to do this and to meet other requirements such as field work, plant protection service and control work.

34. The time has come when it is essential that the staff of the division be increased if progress is to continue.

35. The library of the division is now receiving attention in the same way and it is hoped that in the near future suitable bookcases will be obtained.

PLANT PROTECTION SERVICE.

36. As mentioned elsewhere there were two outbreaks of the coconut caterpillar during the year which required supervision and attention of the division. This subject has already been dealt with in another section of this report.

37. Plant and seed inspections duties in connection with imports and exports which are shared with the Plant Pathology Division, also occupied the attention of the division.

TOURS AND VISITS.

38. Visits were made at several sugar estates during the year in connection with the Amazon fly survey; a trip of three days was made to Lama conservancy in March in connection with an investigation on white grubs (hardback beetles).

39. Dr. K. A. Bartlett of the United States Department of Agriculture, Puerto Rico Experiment Station, visited the Colony in September for the purpose of obtaining supplies of Amazon fly. While here, Dr. Bartlett visited a few of the larger sugar estates and was accompanied by the writer on these visits.

40. Dr. O. W. Richards, Mrs. Richards and Dr. John Smart, who formed a British Museum expedition to the colony in August, visited the laboratory.

IMPERIAL INSTITUTE OF ENTOMOLOGY.

41. The Imperial Institute of Entomology again rendered the Division considerable assistance during the year in the determination of specimens; and in some instances where such determinations were urgently needed had the work carried out especially rapidly. In addition, when determinations of material other than insects has been needed, the Institute has rendered additional service beyond its scope by sending such material to the appropriate specialists and placing the division in communication with them. The value of such an institution and service is inestimable.

PUBLICATIONS.

42. During the year the following publications appeared: Cane population in British Guiana, by L. D. Cleare, Agrl. Jl. Brit. Guiana vol. VIII no. 2, pp. 63-83, June 1937. Experimental rearings of the Amazon fly (*Metagonistylum minense* Towns.) on the yellow-headed sugar-cane moth-borer (*Diatraea canella* Hmps.). by L. D. Cleare, Agrl. Jl. Brit. Guiana vol. VIII no. 4, pp. 190-194, Dec. 1937.

L. D. CLEARE,
Entomologist.

25th February, 1938

DEPARTMENT OF AGRICULTURE.

REPORT ON THE BOTANIC GARDENS FOR THE YEAR 1937.

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REPORT ON THE BOTANIC GARDENS FOR THE YEAR 1937.

STAFF.

E. B. Martyn, B.A.	—Superintendent, Botanic Gardens.
H. A. Cole	—Agricultural Instructor (Horticultural Assistant.)
P. O. Jackson	—Probationer (Clerical Assistant.)
M. Sheriff	—Nursery Foreman.

GENERAL.

The weather during the year was on the whole normal, except that very heavy rainfall was experienced in June and July, and the months of September and October were unusually hot.

2. The pipe line north of the avenue was extended to the west of the bandstand by the addition of a length of smaller bore piping, extending to a point near the main entrance gates. Repairs were carried out by the Public Works Department to the Front Office and side line bridges near the Glass House.

3. The following statement shows the amount spent under the votes accorded to the various Government gardens.

		Vote.	Expenditure.
Botanic Gardens—Maintenance	...	\$ 5,000	\$ 4,999 00
Purchase, Production and Distribution of seeds and plants	...	3,740	3,738 41
Upkeep of Government Gardens and Grounds	...	1,400	1,399 68

FRONT GARDENS.

4. A new purple *Salvia* introduced from Bermuda proved a good innovation in the borders, which were well maintained throughout the year, until the dry weather in November brought their display to a close. Another new introduction was *Strobilanthus isophyllus*. The varieties of *Canna*, 'Prince of Orange' and 'Gyphaete' were extended.

The levelling of the lawns and filling in of minor drains was continued, and the whole Cock Tree flat, the lawn immediately on the left of the main entrance, was raised and can now be cut with the motor mower. The edges of the lawns were built up with earth to give new edges and lessen the width of the paths. The big *Scheelia* palms on the avenue were cleaned and the old leaf bases taken off. The good specimen of *Araucaria Cunninghamii* which stood by the bridge to No. 1 island fell down early in the year. A number of fruits of the Double Coconut (*Lodoicea maldivica*) were planted by No. 2 lake, just north of the aviaries.

6. The following new introductions were set out during the year: *Ardisia crenata*, *Acacia bonariensis*, *Artobotrys uncinatus*, *Callistemon lanceolatus*, *Caesalpinia melanocarpa*, *Bougainvillea spectabilis* var. 'Louis Wathen', *Dombeya mastersii*, *Erythrina pallida*, *E. senegalensis*, *Eucalyptus naudiana*, *Ligustrum lucidum*, *Mesua ferrea*, *Mussaenda macrophylla*, *Saraca indica*, *S. tapengensis* and the Palms *Butia capitata*, *Daemonorops grandis*, *Licuala aruensis*, *Orbignya martiana*, *Phoenix canariensis*, *Sabal texensis*, *Syagrus Weddelliana*, *Trachycarpus excelsa*, *Trithrinax acanthocoma*, *Washingtonia robusta*.

7. The Jacarandas and Long Johns (*Triplaris surinamensis*) made a very fine display towards the end of the year. The *Bougainvilleas* in the north section were also especially good, and the newly planted 'Louis Wathen' in the south section is showing up well.

8. The iron bridge east of No. 1 lake was repaired and the 'paaling' of the edges of the lakes again continued, the greater part of No. 2 lake being completed.

After the creepers overhanging it had been cleared away, the shelter near the bandstand was rethatched.

9. Additions to the aviary included a pair of blue Macaws, one of which died. Another cage was erected to house them. A concrete bird bath was placed in the small bird aviary. Both the Marudis and Powis laid eggs during the year, but none were hatched.

PARK LANDS.

10. The following plants, a number of them new introductions, were set out on the avenue; *Acacia bonariensis*, *A. visco*, *Butia capitata*, *Bombax malabaricum*, *Caesalpinia melanocarpa*, *Cordia alliodora*, *Enterolobium* sp., *Erythea elegans*, *Erythrina cafra*, *E. micropteryx*, *E. pallida*, *E. senegalensis*, *Licuala aruensis*, *Ligustrum lucidum*, *Lonchocarpus nitidus*, *Mesua ferrea*, *Orbignya martiana*, *Patagonula americana*, *Parkia Roxburghii*, *Phoenix canariensis*, *Plumeria rubra*, *Pterocarpus echinatus*, *Ropstonea oleracea*, *Sabal Causiarum*, *Saccellium lanceolatum*, *Sterculia lanceolata*.

11. A path was made from the iron bridge to the Apiary with a marl foundation, surfaced with burnt earth, the bad condition of the serpentine drive in wet weather making this necessary. The Apiary was extended to include a new area east of the original enclosure.

12. A Saman on the north border near No. 3 lake fell, and was utilised in the burning of a heap of earth in this area, which was used for repairs to the avenue and to paths in the front garden. The old Oronoque at the top of the avenue became dangerous and was cut down during the year.

HEAD OFFICE GROUNDS.

13. These were maintained in order during the year. The Hibiscus hedge is now well grown around the whole area. The Hackia trees (*Tecoma* sp.) at the south-west corner did not do well, and were taken out and replaced by a single plant of *Cassia nodosa*. The plants on the Vlissengen Road suffered too great damage from passers-by to admit of their being maintained.

NURSERIES.

Ornamental Section.

14. A new Canna bed was made opposite the rockery, necessitating the removal of some of the old Almond trees. The varieties "Scheherziade" (Salmon Pink) and "Eureka" (Cream) planted in this and the corresponding Canna bed near by made a very fine show throughout the greater part of year.

15. A collection of Dahlias was obtained from a Dutch firm and planted in concrete pots set on either side of the approach to the nursery, where they attracted considerable interest among local Dahlia enthusiasts.

16. New Rose beds were made on the borders of the lawn west of the nursery, and the plants previously grown in concrete pots set out in them. The pots had not proved satisfactory, becoming very hot on sunny days. A number of new roses were obtained from various dealers during the year.

17. The heavy mid-year rains caused the rockery beds to settle to such an extent that they had to be partially rebuilt later in the year. The plants in the rockery always suffer during periods of continuous heavy weather.

18. *Aristolochia elegans* and *A. grandiflora* flowered effectively during the year. The first Anthurium Lily bed near the Director's house was removed, and the plants set out, together with a number of Begonias, Torrernias, Balsams, etc., in a new and longer bed near the back of the house.

19. One of the three Double Coconuts on the Director's lawn died at the end of the year and was cut out.

20. *Orchids*.—The collection was maintained in order during the year, and a further number of plants rebasketed and otherwise remounted. Several new plants were obtained from the Boundary Commission, but only one or two of these have flowered as yet. A plant of *Vanda teres* flowered at Government House for the first time in many years. In the Nursery one or more plants of 69 species of orchids flowered during the year.

21. *Introductions*.—These included a very interesting selection of seed from the Harvard University Atkins Institute of the Arnold Arboretum, some of the plants raised from which were set out during the year. Seed of *Argyrea speciosa*, the Cephalic vine, was obtained from Jamaica, three spp. of palms from Coconut Grove Palmetum, a collection of seed of ornamentals from Trinidad, and some ornamental seed and cuttings from Bermuda. A number of bulbs and seed of *Amaryllidaceae* were obtained from different sources by exchange, and a new species of *Lonicera* (*L. Tellemianiana*) was obtained from England.

Economic Section.

22. *Citrus*.—Budded Orange and Grapefruit plants were distributed during the year as shown in Table I. Assistance was also rendered to owners of private nurseries. Owing to heavy rainfall immediately after budding on one occasion and to the supply of budwood being immature on another, the number of budded plants basketed during the year was below normal. Also the number of Grapefruit plants ordered was less than usual.

TABLE I.
DISTRIBUTION OF BUDDED ORANGE AND GRAPE FRUIT DURING 1937.

	East Coast.	West Coast.	West Bank.	Demerara River.	Berbice.	Essequibo.	Georgetown.	Total.
Budded Orange ...	81	2	65	236	101	26	68	579
Budded Grapefruit ...	1	...	32	4	18	2	12	69
Total ...	82	2	67	240	119	28	80	648

23. *Orchard*.—The following additional plants were set out in the orchard: *Aleurites moluccana*, *Caryoca nuciferum*, *Garcinia spicata*, *Persea gratissima*, var. *Panchoi*, *Mangifera indica* var. *Peters*, *Manihot dichotoma*, *Vangueria edulis*.

24. *Grafting*.—Some of the old mango trees in the nursery were partially cut back to encourage the growth of young shoots for grafting. The trees at the Experiment Station gave a further supply of grafts, and in all 213 grafted plants were basketed for disposal. The grafting of Pears was also extended, both bottle grafting and wedge grafting of seedlings and inarching being employed, and 79 plants in all were obtained for disposal.

25. *Yams*.—A collection of those commonly grown in the Colony was made in the Vegetable Garden. During the year material of local yams was sent to Mr. Burkill at Kew for their proper identification, and the following determinations received. The 'Cush-Cush' yam, including both 'white skin' and 'purple skin' varieties, is *Dioscorea alata* L., the 'Buck Yam', including both 'Purple' and 'Cow Foot' varieties, is *D. trifida* L. and the so-called 'Wild Yam' is *D. cayennensis* Lam., originally a native of Tropical Africa, but a very early introduction to South America.

26. *Fish Poisons*.—A collection of Fish Poison plants was set out in a series of new beds made to the east of the Chemical Laboratory. The plants included Black (*Lonchocarpus chrysophyllus* Kleinb.), and White Haiari (*L. Martynii* A. C. Smith n. sp.), Conaparu (*Euphorbia cotinoides* Miq.), Daukanani (*Phyllanthus brasiliensis* (Aubl.) Muell. Arg.) and *Derris elliptica* Benth.

27. *Introductions*.—These included plants of Panchoi Pear and Peters Mango from Trinidad, a variety of Alfalfa which made very fair growth, suckers of the

I.C.2 Banana and tubers of the Black Rock variety of Sweet Potato from the Imperial College of Tropical Agriculture, Trinidad, seed of the Tree Tomato (*Cyphomandra betacea*) from Jamaica & Amani and cuttings of *Derris elliptica* which latter, together with seed of *Tephrosia toxicaria* var. and *Cracca* (*Tephrosia*) *Vogelii* were obtained from Puerto Rico Experimental Station.

28. *Tables.*—The following tables indicate the work carried out in the nurseries and detail the revenue received from sale of plants, etc.

TABLE II.

Plants put out in the Gardens	—on parapets ...	21,830
" " " " " "	—shrubs, trees, &c. ...	121
" basketed and potted	—ornamental ...	7,907
" " " " " "	—economic (except citrus) ...	3,557
" ringed and layered	— ...	923
" (pears) grafted	— ...	259
" (mangoes) "	— ...	236
Seed sown	—ornamental (other than packets) ...	72
" "	—economic (other than citrus) ...	5,558
Citrus		
Seed sown	— ...	11,900
Seedlings bedded out	— ...	1,714
" budded	— ...	1,474
Plants basketed	— ...	407
Cuttings grown in propagator and beds	... ..	1,387

TABLE III

PLANTS SOLD AND DISTRIBUTED DURING THE YEAR 1937.

Economic Section.				Ornamental Section.			
Budded Grapefruit:				Palms	...	...	385
Marsh	...	...	69	Ferns	...	...	161
Budded Lime	...	...	11	Begonias	...	...	91
Seedling "	...	...	28	Crotons	...	...	39
Budded Orange:				Hibiscus	...	...	40
Jaffa	...	...	7	" cuttings...	...	...	1,464
King	...	...	4	Miscellaneous	...	...	1,020
Haag's Bosche	...	...	171	Total	...	...	3,200
Late	...	...	13				
Navel	...	...	9	Bamboo, bundles	...	...	138
Parson Brown	...	...	27				
Pineapple	...	...	16				
Lus Gim Gong	...	...	14				
Valencia	...	...	17				
West Bank	...	...	279				
Late Summer	...	...	22				
			579				
Grafted Mango:							
Bombay	...	...	2				
Chinoise	...	...	1				
Mrs. Dare	...	...	5				
D'Or	...	...	5				
Julie	...	...	77				
No. 11	...	...	26				
Peach	...	...	3				
Martin	...	...	1				
Mrs. White	...	...	7				
Bangalore	...	...	3				
Père Louis	...	...	1				
			131				
Grafted Pears	...	...	29				
Cacao (Seedlings)	...	...	2,000				
Nutmeg	...	...	3				
Other Economics	...	...	976				
Total	...	...	3,826				

TABLE IV.

STATEMENT OF REVENUE RECEIVED FOR 1937 FROM BOTANIC GARDENS AND SALE OF GUIDE BOOKS

Months.	Sale of Plants.	Hire of Plants.	Sale of Pots.	Sale of Lilies.	Sale of Bamboo.	Miscella- neous, delivery, &c.	Sale of Guides.	Total.
January	...\$ 22 71	\$ 15 44	\$ 3 24	\$ 92	\$ 3 08	\$ 08	\$ 2 86	\$ 48 33
February	... 35 70	...	72	98	1 24	06	4 32	43 04
March	... 11 55	...	...	2 44	1 40	...	3 32	18 71
April	... 14 99	1 00	48	3 25	92	...	3 84	24 43
May	... 31 34	3 36	1 92	1 76	84	94	2 40	42 56
June	... 79 11	...	3 00	1 86	1 28	1 72	1 44	88 41
July	... 47 57	...	36	2 08	88	98	3 84	55 71
August	... 37 05	...	24	4 50	96	80	3 82	47 37
September	... 27 28	...	...	1 58	72	42	1 40	31 40
October	... 19 48	...	...	08	36	36	68	20 96
November	... 36 78	8 96	1 44	88	42	36	4 32	53 16
December	... 59 68	5 28	2 04	1 85	3 96	1 52	2 16	76 49
Total	...\$ 423 24	\$ 34 04	\$ 13 44	\$ 22 18	\$ 16 06	\$ 7 26	\$ 34 40	\$ 550 62

NEW AMSTERDAM PUBLIC GARDEN.

29. The Herbarium Assistant visited the Garden and listed the trees and palms, which were named, and subsequently suitable hand painted labels provided for them.

APPRENTICES.

30. Seven apprentices were employed during the year and underwent instruction in the different sections of the Gardens and Experiment Stations.

GOVERNMENT HOUSE AND PUBLIC BUILDINGS GARDENS.

31. The Gardens at Government House were maintained in good order and were looking their best at the time of the Coronation Garden Party. With the arrival of the new Governor at the end of the year some alterations were made to the vegetable garden, which was enlarged and entirely surrounded by a high fence for training runner beans.

32. At the Law Courts Gardens some small trees and palms which screened the statue of Queen Victoria were removed.

TEACHERS' TRAINING COURSE.

33. This was repeated from February to July along the lines followed in the previous year. Sixteen teachers attended the course.

E. B. MARTYN,
Superintendent, Botanic Gardens.

January 28, 1938.

DEPARTMENT OF AGRICULTURE.

REPORT ON THE VETERINARY DIVISION FOR THE YEAR 1937.

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Beef cattle ; Dairy Cattle ; Pigs ; Poultry ; Donkeys ; Export.					

REPORT OF THE VETERINARY DIVISION FOR 1937.

GENERAL.

1. Routine attendance was given to the stock farm and Police stables, and imported animals were inspected at the wharves.

STOCK FARM AND BREEDING STATIONS.

2. Distribution of Animals on December 31, 1937.

Georgetown Farm—		Holstein-Friesian bulls	...	3
		Red Poll bull	...	1
		Guernsey bulls	...	2
		Guernsey bull calf	...	1
		Holstein-Friesian cows	...	2
		Holstein-Friesian heifer calf	...	1
		Creole cow	...	1
		Creole heifers	...	2
		Holstein-Creole heifers	...	5
		Holstein-Creole bull calf	...	1
		Canadian-Berkshire boars	...	3
		Canadian-Berkshire sows	...	2
		Canadian-Berkshire gilts	...	6
		Kentucky Jack	...	1
		Colts	...	2
		Working donkeys	...	2
		Rhode Island Red pens	...	2
		Barred Rocks pens	...	
		Duck pens	...	3
Leguan Breeding Station—		Guernsey bull	...	1
		Rhode Island Red pens	...	2
Kitty Breeding Station		Holstein-Friesian bull	...	1
3. Services	—Bulls	378		
	Jack	25		
4. Sales	—Bulls	2		
	Pigs	42		
	Poultry	174		
	Ducks	2		
	Eggs	3,350		
	Duck eggs	303		

5. Revenue—Sales, service and inspection fees—\$1,206.39.

6. Importations and local purchase :

Red Poll bull from England	1
Boar 1, gilts 2, from Canada	
Barred Rocks from Canada pens	2
Local purchase—Guernsey bull calves	2

7. *Buildings.*—In preparation for the consignment of Herefords and Red Polls expected from England in January next year two stables have been built. Three vats for a clean water supply have been erected and the food and straw barns have been extended. A house has been built for the farm foreman.

8. *Land.*—In order to carry out the new policy of agisting female cattle for breeding purposes the farm has been re-planned. The pig and poultry sections have been moved to new sites and each is now self-contained and separate from the cattle areas. All the land has been drained, cleared of bush and divided into

twelve paddocks. Roads for easy access to all paddocks, and bridges across the main trenches have been built. Shade trees have been planted and the area under forage crops increased.

9. *Breeding Stations*.—After the sale of the herd at Mazaruni the Holstein Friesian bull and five Holstein-Creole heifers were transferred to Georgetown. The Leguan Station is continued with one Guernsey bull and two pens of poultry. A new station was started at Kitty with one Holstein-Friesian bull. A Holstein-Friesian bull was sent to the Essequibo District but met with an accident and died.

10. *Forage Plants and Grasses*.—A quantity of slips of *Indigofera endecaphylla* and *Asystasia gargetua* and Teosinte seeds have been distributed to farmers but there is little demand for forage plants.

ANIMAL HEALTH.

11. Two outbreaks of Anthrax occurred on sugar estates. In one outbreak one mule died; in the other, which was caused by Anthrax vaccine, four mules died.

No other infectious disease has been reported.

ANIMAL HUSBANDRY.

12. *Beet cattle*.—There has been no importation of improved bulls by cattle-breeders. Breeding all the year round is still practised on the savannahs in spite of the number of calves which are lost during the floods of the rainy seasons. The chief obstacles to progress are the semi-starvation of calves for the sake of obtaining a few pints of milk for sale, and over-stocking of the grazing areas.

13. *Dairy Cattle*.—There has been a general improvement of the dairy cattle kept in the Georgetown area. The prices for well-reared grade stock are increasing. The demand for clean milk is greater and milk vendors are getting higher prices.

During the year there has been a shortage of rice meal, said to be due to millers requiring all they produced for feeding their own cattle and pigs.

Last year it was possible to give the milk yields of a few grade Holstein-Creoles. Milk recording is rarely practised by cow-keepers, but the following, obtained from Mr. H. A. Fraser's dairy, are reliable :

GRADE I.				GRADE II.				GRADE III.		
Age at 1st calving.	No. of lactations.	Days.	Yield in lb.	Age at 1st calving.	No. of lactations.	Days.	Yield in lb.	Age at 1st calving.	No. of lactations.	Yield in lb.
42 months...	1	313	4,312	27 months...	1	302	5,080	40 months...	1	6,008
	2	293	4,813		2	357	8,834			
					3	312	8,024			
37 months...	1	366	5,275	28 months...	1	314	5,452			
	2	293	5,239		2	392	7,912			
	3	345	6,417		3	415	10,063			
	2	360	6,550							
	3	316	5,806							
	4	255	6,112							
	5	220	5,504							

Pigs.—There is a gradual improvement in the rearing of pigs, but the prices for pork are still too low to encourage pig-keepers.

Poultry.—Comparatively little interest is taken in poultry. The ruling prices for eggs and table birds offer no inducement for the rearing of poultry as a commercial proposition.

Donkeys.—The introduction of motor tyres on donkey carts has given an impetus to this cheap form of transport.

14. *Export*.—Early in the year the Government Veterinary Surgeon made a visit to Trinidad to inspect the class of slaughter animals supplied to the island from Venezuela and to make enquiries as to the possibility of the island butchers accepting slaughter cattle and pigs from British Guiana.

From the information obtained he concluded that there was a market for the best type of coast cattle and also pigs provided that they were inspected before shipment and some discretion was practised as regards their selection for condition.

Certain Berbice cattle dealers agreed to export under these conditions and during the year small consignments of both cattle and pigs have been despatched every fortnight. The demand for coast cattle is increasing.

Better facilities for export are required particularly as regards the steamer's sailing to a time schedule. At the present time, cattle arriving at the port of embarkation to meet the steamer are frequently kept waiting for several days in an area where grazing is scanty and consequently lose condition.

In 1936 the export was Cattle 95, Pigs 321.

In 1937 the export was Cattle 781, Pigs 975.

This new market with an increasing demand should encourage the cattle-breeders of the coast to produce more and better cattle.

T. BONE,
Government Veterinary Surgeon.

February 4, 1938.

